

Protect Title:

“From Timber to Trusses”

Employment & Energy Efficiency

A proposal to put local people to work, using local renewable resources, in direct support of our regional housing authority's mandate to provide affordable energy efficient housing throughout the Yukon-Kuskokwim Region

Applicant Name:

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Project Summary Abstract

Native Village of Napaimute's goal is to promote job growth, create sustainable employment opportunities within the region, and develop a locally based truss manufacturing industry that directly supports our regional tribally designated housing entity in its efforts to provide affordable, energy efficient homes for our people. We want to facilitate additional employment, assist in professional training, and advance vocational skills for our Tribal members and tribal residents of nearby villages.

Napaimute, *People of the Forest*, seeks funding to purchase a local sawmill, Nelson Brother Enterprises, LLC.; disassemble the mill/support buildings; relocate the sawmill from Chuathbaluk 43 miles down the Kuskokwim River to our Lower Kalskag Timber Harvest Site where it will increase our timber harvesting and production capacity. Harvested timber will be milled into truss lumber; then cured, stored, and inspected; before being transported by river barge to the Association of Village Council Presidents Truss Manufacturing Plant located 93 miles downstream at the regional hub city of Bethel. The *Timber to Truss Project* is the foundation of future economic sustainability for the Native Village of Napaimute and will positively impact other Tribes within our region through employment and training opportunities where none currently exist. The Tribe identified four strategic goals in its current Community Master Plan. The first three have been accomplished. This proposal supports the fourth and final strategic goal of our current master plan:

“To establish a variety of economic development projects to sustain Napaimute's economy.”

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Attachment #3: 15-07 *Napaimute Traditional Council: Code of Conduct*
Attachment #4: *2004 Napaimute Community Plan*
Attachment #5: Napaimute's 2010 Sustainable Forestry Management Plan
Attachment #6: TKC TIMBER SALE AGREEMENT
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Attachment #8: Letter of Intent and Agreement to Purchase
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Attachment #13: NVN FINANCIAL POLICY & PROCEDURE MANUAL
Attachment #14: NVN TKC Letter of Support
Attachment #15: Sam Callen: Napaimute Firewood Distribution Financial Analysis
Attachment #16: AVCP ICDBG Letter of Support
Attachment #17: Truss Plant Financials Rough Draft for Client

Attachments not Listed in Narrative

Form SF 424 Application for Federal Assistance
Form HUD-2880 Applicant/Recipient Disclosure/Update Report
Form HUD-2939 Acknowledgement of Application Receipt

Screening Requirements:

- 1.) Eligible Applicant: **YES** (Native American Tribal Government: Federally Recognized (Attachment #1))
- 2.) No Less than 70% of expenditures of the proposed grant will benefit Low/Moderate-Income persons and meet regulatory criteria at 24 CFR 1003.208 for: Area benefit; Limited Clientele Activities; Housing Activities; or Job Creation or Retention Activities: **YES**
- 3.) Eligible Economic Development Project: **YES**

Project Specific Thresholds:

- 1.) Provide an Independent financial Analysis: **YES:**

Rating Factor Narrative

Rating Factor 1: Capacity of the Applicant (30 pts)

Factor 1, Sub-factor 1:

Managerial, Technical, and Administrative Capacity

Factor 1, Sub-factor 1.a. (up to 8 pts)

Managerial and Technical Staff:

Project Manager and Administrator:

Since the Native Village of Napaimute completed its Community Master Plan in 2004, Director, Development & Operations, Mark D. Leary, has been responsible for all aspects of carrying out the Tribe's vision, building capacity, and working towards self-determination. Mark oversees all grant programs that Tribe administers, is responsible for narrative and budget reporting, as well as recruiting, training, and supervising a full-time employee and numerous seasonal employees. While Mark D. Leary is well known and respected throughout the Yukon-Kuskokwim Delta, it is his driving force, work ethic and motivating charisma which advances Napaimute to pursue and accomplish their goals.

Mark's responsibilities also include: organizing Traditional Council meetings; coordinating all aspects of the Annual Tribal Gathering; procuring equipment to construct Tribal infrastructure; negotiating land transfers; planning and facilitating all aspects of community economic development the governing body has identified; and, management of construction projects. Mark oversees the Environmental Director who administers the Tribe's Indian General Assistance Program funded by the U.S. Environmental Protection Agency; oversight and administration of the fisheries programs partnering with both the State of Alaska: Department of Fish and Game and the United States Fish and Wildlife Services; administration of Kuskokwim 300 Trail Marking project; oversight and implementation of Department of Natural Resources Winter Transportation Route Marking; participation and leadership in Bethel Search and Rescue; planning, and facilitating the Native Village of Napaimute Search and Rescue; administer the Department of Transportation, Tribal Transportation Program; and, implement the Institute of Museum and Library Service grant. Additionally Mark is responsible for oversight and administration of the annual budget under direction of the Council.

In 2009, Napaimute formed the first organized firewood business on the Kuskokwim River, *Napaimute Enterprises, LLC*. The Enterprise business includes fuel sales (procurement & sales), rental lodging, equipment rental, timber harvesting, firewood processing, packaging, marketing and distribution throughout the vast and tree-less Lower Kuskokwim Delta. Napaimute Enterprises Firewood Distribution business is the first organized firewood distribution business in a region that includes 55 other villages. Over the past three years, Napaimute Enterprises LLC., has harvested, and processed a large volume of wood from tribally-owned land and since 2012, from land leased from its village corporation, The Kuskokwim Corporation. Once harvested, wood is sold as full logs, or split, packaged and distributed. The crew Mark assembled to operate the Tribe's wood business has provided over 2000 cords throughout a region roughly the size of New York State.

The Tribe prides itself in timely submission of all narrative and financial reports required of funding agencies. Napaimute only applies for and administers programs the Tribe has capacity to manage. In keeping with this philosophy, quarterly, annual and biennial reports are timely submitted to State, Federal, and grant funders. Mark believes in cross-training when training opportunities present themselves and he sends at least two people to training in order to eliminate regression/recoupment time in case of employee turnover.

To facilitate the *From Timber to Trusses* project, the Napaimute Traditional Council has assembled a team of professionals who complement each other's strengths and are able to complete the proposed economic development project in a timely and efficient manner. Local and regional partners have submitted stellar letters of support that are critical to this project's success. The team is as follows:

Project Planning and Oversight:

Napaimute Traditional Council: The Council has worked with the Napaimute Director of Development and Operations, Mark Leary, and Association of Village Presidents (AVCP) to develop parameters and specifications of the *From Timber to Trusses Project*. The Council has been responsible for seeking community input and approving the final framework for this proposal. (See Attachment #2: Resolution 16-10: Napaimute Assurance of Community Input and Notice) The Napaimute Traditional Council is comprised of five elected tribal members who have met the qualifications to be seated on the council, and have not been convicted of a felony.

Napaimute Traditional Council is comprised of Tribal President Devron Hellings, Vice President Marcie Sherer, Secretary Shelly Leary and members Rachelle Rohde and Audrey Leary.

Devron has over a decade of experience leading our Tribe in a variety of capacities. She was elected Council President two years ago and served on the Calista Corporation Regional Tribal Government Steering Committee. She is well respected throughout the region and is an extremely effective advocate for our Tribe. Devron has over 25-years' experience in private business and her vision includes economic sustainability for the Tribe and developing partnerships with economic development-oriented entities.

Marcie Sherer is a former Napaimute Council President, past AVCP Executive Board Member and former Kuskokwim Corporation Board Member. Most recently Marcie was Treasurer of the Calista Corporation Board of Directors. Currently she holds the position of VP Finance & Administration for a regional housing authority. Marcie provides valuable oversight in all financial matters.

Shelly Leary is the newest elected council member having previously served on the Council for nearly a decade during the mid 1990's to mid 2000's. She was instrumental in the creation of the Napaimute Community Plan and other key aspects of our Tribe's development during those early years. Shelly has been an educator for 23 years, seven years with Kuspuk School District in Upper Kalskag, and is now in her 16th year with the Lower Kuskokwim School District teaching in Bethel. As lifelong resident of the Kuskokwim River, Shelly incorporates her vast knowledge of traditional subsistence lifestyle with the western model of living. Shelly has served as a Board Member with The Kuskokwim Corporation and has long been the Annual Gathering Recording Secretary for the Tribe.

Rachelle Rohde has been working with or been part of the Council for a decade. Rachelle has been employed with a major retailer for 11 years, nine as a supervisor. Previously, Rachelle was a full charge bookkeeper for a residential tree service company. Rachelle volunteers as an Art Docent at a local elementary school.

Audrey Leary adds the enthusiasm of youth, and personal knowledge of Napaimute's growth and development. She is a summer resident in Napaimute, a college senior currently attending the University of Alaska, Anchorage, majoring in Elementary Education. Audrey represents the politically active future generation of our leaders. She volunteers for a variety of organizations including the nationally recognized organization "Forget-Me-Nots".

The Native Village of Napaimute's Council along with its Director successfully administered and managed the subsequent monies that previously fell under the \$750,000 threshold, so did not require an annual A-133 audit:

Alaska Department of Natural Resources Recreational Trail Grant, 2011-13, 2014-16, \$100,000
U.S. EPA Indian Environmental General Assistance Program (2005-2015), \$120,000 annually
BIA-638 Tribal Priority Allocation (2000-2016 TPA Program) \$104,750 annually
ANA, Napaimute Community Master Plan, 2001, \$120,000
ANA Survey of Napaimute's Community Lands, 2005, \$120,000
ANA Napaimute Airport Economic Development, 2008, \$120,000
Federal Highways Administration (FHA) IRR, 2010 – 2016, \$50,000 annually
FHA IRR, Tribal Transportation Safety Grant (2015-2016), \$121,300
TANF Cultural Youth Grant, \$10,000 annually

SYETP, \$4,000
USDA: RBDG, \$100,000
Youth At Risk: Tribal Court, \$4,000
IMLS Basic Library Grant, 2005-2016, \$6,000 annually
OSM, Partners in Fisheries Monitoring, 2016-2019, \$170,000 annually
PSMFC, Fish Wheel Demonstration Project, 2015-2016, \$69,300
OSM, Tribal Wildlife Grant, 2016, \$75,000
ADF&G, Aniak Test Fishery, 2016, \$37,000
ADF&G, Salmon River Weir, 2016, \$32,000
ADF&G, In Season Monitoring, 2016-2019, \$29,000 annually
ADF&G, George River Internship Program, 2016-2017, \$50,000 annually

Per election policies and procedures, every elected member of our Council is a Tribal member of the Native Village of Napaimute, a Federally Recognized Tribe.

Director of Development and Operations

Mark Leary: Mark Leary for the last 16 years has been the Native Village of Napaimute's Director of Development & Operations; As a lifetime resident of the Middle Kuskokwim River, Mark serves his people in a variety of ways. Currently he holds or has held a position on the following committees and/or councils:

- *Kuskokwim Inter-Tribal Fish Commissioner, Napaimute representative
- *Kuskokwim Inter-Tribal Fish Commission Steering Committee
- *Kuskokwim Subsistence Salmon Panel Member
- *Central Kuskokwim Fish & Game Advisory Committee Member
- *Kuskokwim River Salmon Management Working Group – Upriver Subsistence Representative
- *State of Alaska Snowmachine Trails Advisory Committee Member
- *Bethel Search & Rescue – Board of Directors & Team Leader
- *Kuskokwim 300 – Member, Board of Directors
- *Kuskokwim Watershed Council Interim Steering Committee Member
- *Mid Yukon Kuskokwim Soil Conservation District Board Member
- *Interior Rivers RC & D Council Board Member
- *Senate Bill 40 (Kuskokwim Port Authority) Committee Member
- *Exploratory Committee Member for the Formation of a Middle Kuskokwim Borough

Throughout this project Mark will be responsible for serving as the point of contact between the Council, contracted professionals, project manager, project administrative support and granting agencies. Mark is also responsible for project financial planning and adjustments (oversight), project grant compliance, project scheduling, and human resources procurement and oversight. Mark is very experienced in this role. Listed below are just a few of the projects Mark has completed over the last decade. These projects have been completed within the proposed budget, on schedule, and were closed out on time.

- Construction of the Napaimute Traditional Council Office using tribally produced lumber
- Construction of the Napaimute Tank Farm
- Construction of the Napaimute Community Multi-purpose Building (tribally milled)
- Construction of three rental cabins using tribally harvested wood & labor
- Construction of the Napaimute Airfield
- Construction of the Napaimute Chapel using tribal wood & labor
- Construction and permitting of the Napaimute Landfill and access road
- Management of the Napaimute small sawmill business: recruitment & training
- Fulfillment of a 1,000 cord firewood contract with Coastal Villages Region Fund

- Negotiation of a 400-acre timber sale agreement with The Kuskokwim Corporation
- Oversight of mobilization of Napaimute's timber harvesting equipment over the ice to the new harvest site 70 miles downstream
- Management of Napaimute's Firewood Business which has harvested, packaged, marketed, and transported thousands cords of firewood throughout the region.

Project Manager

Joseph Evan: Joseph will act as Project Manager. Although Joseph lives in Lower Kalskag, he has been working with Tribes of the Middle Kuskokwim region for several decades. Joseph is knowledgeable in a vast array of capacities; however in the area of forestry, heavy equipment operations and maintenance, and milling lumber, Joseph's knowledge base is superior. As project manager, Joseph will be responsible for assisting Mark in workforce oversight, material takeoff, bidding materials, procurement compliance, project compliance inspections, quality control, and managing/adjusting project schedule.

Project Administrative Support

Lisa Feyereisen: Lisa will build Tribal capacity relative to mandatory NAHASDA/ONAP reporting requirements ensuring that the Tribe complies with all necessary paperwork, reviews, posting and program compliance. Lisa previously worked five years as a Tribal Administrator in our region. She successfully administered and managed 5 years and annual ONAP Indian Housing Block Grants, while constructing a new house for a low-to-moderate income tribal elder. Lisa also administered an ICBDG grant for the construction of a community building in the remote Middle Kuskokwim River village of Sleetmute. This project was completed on schedule, and within budget. Lisa's reports were on time, in-compliance, and accurate.

Accounting

Mia Jenkins: Mia Jenkins, Tabularis Bookkeeping, Inc. has worked with the Native Village of Napaimute for the past four years. She reconciles and organizes our daily financial records and monthly bank statements; produces monthly and annual financial statements; and, provided full payroll services including completing of federal/state quarterly tax returns, insurance reports and payroll tax deposits. Mia is experienced in a variety of bookkeeping payroll programs including QuickBooks, Peachtree, Quicken Home & Business, and MS Office. Mia attended Boise State University where she earned a B.A. degree in General Business Management and achieved Dean's List status. Throughout the project Mia will be responsible for payroll, taxes, providing current profit and loss statements, compilation of procurement and vendor files, and perform accurate drawdowns as needed. Mia will also complete thorough financial reports as required under this grant.

All team members have their resumes on file at the Napaimute Traditional Council's office.

The Council has also adopted specific policies from the Association of Village Council Presidents (whom Napaimute compacts PL93-638, tribal services with) in order to be in compliance with federal agencies requirements: Procurement Policies and Procedures, Tribal Wage Rates, Force Account and Labor Policies and Procedures. These documents are published, and labeled. They are located in the Director of Development & Operations office. Napaimute is in compliance with the Code of Conduct requirement and passed their Code of Conduct on October 21, 2015.

SUPPORTING DOCUMENTS

Attachment #3: 15-07 *Napaimute Traditional Council: Code of Conduct*

Factor 1, Sub-factor 1.b. (up to 8 pts)

Project Implementation Plan and Program Evaluation

Many “Pre” project agreements/paperwork have been completed which will enable Napaimute to begin to implement *From Timber to Trusses* as soon as we have received the “Notice to Proceed” from ONAP. In planning for community infrastructure and economic development, Napaimute’s leadership set out to provide clear, relevant, and culturally competent blueprint for growth.

The *2004 Napaimute Community Plan* (Attachment #4) is the master plan which the community developed to guide it. This has been our Bible. Our Tribal leaders have long recognized that the forest resources of the Middle Kuskokwim would play a key role in developing an economy that is sustainable for the Tribe, as well as for the people of neighboring villages. Adhering to the *2004 Napaimute Community Plan* the Napaimute Traditional Council built a 75’ x 2,800’ Pioneer Airfield; constructed a multi-purpose community building, a tribal office, and rental cabins using locally sourced wood; established a business enterprise that includes retail gas sales, small convenience store, lodging, equipment rental, firewood sales, and a sawmill producing lumber and cabin packages. These projects allowed Napaimute to develop and grow an employment pool in the Middle-Kuskokwim Region, while facilitating capacity building.

The Native Village of Napaimute began to explore the feasibility of a variety of economic development project utilizing the abundant renewable natural resource of our forest and contracted with the United States Department of Agriculture-Natural Resource Conservation Service to complete a Middle Kuskokwim Forest Inventory (2006). This inventory contributed to the development and adoption of Napaimute’s 2010 Sustainable Forestry Management Plan (Attachment #5). The 2006 Forest Inventory determined that the forest on Napaimute’s tribal lands were mature. The timber had grown to ripeness and needed to be harvested before the trees started falling down. We learned that many of our trees had reached maturity over 50 years ago. During the fall & winter of 2009, Napaimute experienced two high wind events that negatively impacted the forest. A follow up forest inventory in 2010, determined that we lost at least 40% of our timber to these events; the trees had simply blown down. It was the recommendation of the NRCS Forester that the remaining trees be harvested as soon as possible for economic development purposes. In fact his findings could be applied to the entire Middle Kuskokwim Region.

With this information, Napaimute began to identify key components of a successful timber harvesting business:

1. Wood as a heating source. Heating fuel prices were skyrocketing so people were seeking alternatives. Wood heat reemerged as a viable alternative. A sustained demand for firewood to be used as a primary heating source for homes located in the treeless Lower Kuskokwim River and Delta emerged as a viable business model;
2. A source of wood. Napaimute owns a long-term supply of timber available for harvest and has negotiated and leased 400 additional timber harvesting acres from its village corporation, The Kuskokwim Corporation (Attachment #6);
3. Growth requires equipment. Napaimute researched, identified, and purchased (obtaining a commercial loan which will mature in 2018) specialized firewood harvesting and processing equipment that would allow it to operate safely and more efficiently;
4. The need to provide products in the form customers want. Standardized packaging techniques, i.e., packaging of split firewood and the banding of one cord bundles of round logs, the creation of ‘steam bath bundles’; and
5. Identify the best cost-efficient transportation mode to market. A cost-efficient, well-developed freight transportation system to lower river communities, e.g., backhauling on barges returning to the Port of Bethel empty after delivering fuel and freight to

communities above Napaimute and by truck over the ice road on the frozen Kuskokwim River in winter.

After these key components were identified, tribal input was sought, and with Council approval, Napaimute formed the first organized firewood distribution business on the Kuskokwim River, Napaimute Enterprises, LLC. We advanced a Firewood Business Plan and contracted an independent financial analysis of our plan by University of Alaska, Fairbanks Cooperative Extension (Attachment #7). Our forestry management plan focuses on long-term objectives. Napaimute entered into an Environmental Quality Incentives Program (EQIP) contract with the Natural Resources Conservation Services, NRCS, for the clear-cutting and natural reseeding of 20 acres of forest per year for the next three years.

After five years of successful firewood distribution operations, in 2014 the Native Village of Napaimute began exploratory discussions with potential partner entities regarding expansion of our harvesting activities. Simultaneously, the Association of Village Council Presidents (“AVCP”, our regional tribal non-profit tribal organization) began analyzing the potential of utilizing Middle Kuskokwim River lumber in the manufacturing of home trusses. After receiving funding, AVCP commissioned a study to examine the feasibility of manufacturing home-construction components in the region, using Middle Kuskokwim sourced lumber, as a means of lowering the barriers to housing development while providing local jobs and bolstering the fledgling regional timber industry. This well-thought out business plan determined that a truss manufacturing plant using locally produced lumber was feasible with the support of our regional tribal housing entity – AVCP Regional Housing Authority (RHA).

The Native Village of Napaimute entered into an “Intent to Purchase” agreement with The Nelson Brother Enterprises, LLC., to purchase their sawmill, machine parts, and outbuildings associated with the currently functioning sawmill, located in Chuathbaluk, Alaska (See Attachment #8). This is currently the largest sawmill on the Kuskokwim River fully capable of producing the volume of lumber needed to support the construction schedule of AVCP RHA.

Napaimute developed a detailed Project Implementation Plan that identifies specific tasks and timelines to successfully complete its proposed “*From Timber to Trusses Project*” on time and within budget.

Schedule

Phase I of our project involves the fulfillment of “Intent to Purchase” of the local Sawmill. This is phase of the project is expected to be complete within 30 days of the *Notice to Proceed* and funds made available to Napaimute through the LOCCS drawdown system. This is a sole source purchase and found to be in compliance with our “sole source” procurement requirements. The “Nelson” sawmill is the mill used by Samuel R. Callen from the University of Alaska Anchorage in the *Truss Plant and Sawmill Business Plan* produced for AVCP. The use of this sawmill for the manufacturing of lumber has been analyzed and found to be in compliance with our sole sources purchase procurement guidelines.

Phase II of our project will be occurring simultaneously as Phase I. Napaimute will post, recruit and interview for needed positions, per our Employment Policies and Procedures. Once employees have been hired, they will be trained for said positions.

Phase III will be the disassembly of sawmill mill and buildings which support the mill at its current location and ready the materials for transport. This Phase also includes the mobilization of the sawmill 43 miles downriver to the timber harvest site below Lower Kalskag. One of the key findings of the aforementioned Truss Plant and Sawmill Business Plan was that it is not feasible to use timber harvested from the Upper Kuskokwim due to the extreme remoteness and cost prohibitive transportation rates. The timber and sawmill must be located closer to the large Lower Kuskokwim market. Napaimute’s 400-acre leased timber site located downstream is ideal for this.

Depending on the date of award from the Office of Native Program, Napaimute will need to transport the mill operations over the Winter Ice Road or by summer river barge. It is anticipated that the Winter Ice Road will be the mobilization route available. Either method of mobilization will be awarded according to our adopted procurement policies and are estimated to be of approximate equal cost. The disassembling and mobilization of mill and building will take approximately 30 days. During the mobilization aspect of this phase, harvesting of timber which is addressed in Phase V of this project will begin as the workers are not required for the outsourced mobilization task.

Phase IV entails the reassembling of sawmill, and construction of buildings needed to support the milling process. At this time the Project Manager will develop and send out the RFPs needed to provide and material inspection necessary for quality assurance of the raw lumber product.

Phase V includes the harvesting of raw timber, milling of the truss lumber, inspecting of lumber for assurance of the quality of the Proto-Type Trusses, and banding of the lumber for transportation to Bethel.

Phase VI occurs after the inspection of the raw lumber product. The lumber will then be transported to the assembly site in Bethel, Alaska (the port community of AVCP, Inc., and also serves the entire region as a trans-shipment point).

Phase VII will be the grant close-out phase of the project. All grant completion reports and supporting documentation will occur in a timely manner.

AVCP has entered into an MOU (Attachment #9) to articulate their support for the purchase of the Proto-Type Truss product and to work collaboratively with the Native Village of Napaimute to facilitate. AVCP supports and addresses Napaimute's purchase of Nelson Brother Enterprise's, LLC., mill as demonstrated in the sawmill section of their Integrated Truss Plant and Sawmill Business Plan (Attachment # 10),

Sawmill

Should AVCP decide to purchase its lumber locally, a key consideration will be the successful operation of a local sawmill to process raw timber into graded dimensional lumber for use in its truss manufacturing plant. The proposed sawmill under consideration is located in Chuathbaluk, a community of 118 residents located in the Bethel Census Area near the Kuskokwim River. It is owned and operated by Nelson Enterprises, LLC.

The Chuathbaluk sawmill was established in 1959. It operates using a circular automated mill capable of producing between 10,000 and 15,000 board feet of lumber per day. The mill has an auto carriage for easy loading of timber, and could be run by a single individual if need be. The mill also features air dry and air storage capabilities in order to get the lumber down to the moisture content required by grading agencies. The acquisition of a band re-saw would help to reduce energy costs at the mill, as well as increase daily production capacity by approximately 2,500 board feet. The entire system is currently powered by diesel fuel. The mill would be capable of producing both 2"x 4" and 2"x 6" dimensional lumber.ⁱ

Historically, the sawmill has produced logs for use in log cabin-style homes in the region. The sawmill takes round timber and saws off three sides to create stackable logs that can be pieced together to form a cabin. In recent years, however, these operations have slowed in the region and *today the mill largely sits idle*. If restarted for lumber production, it is anticipated that the mill will either remain owned by Nelson Enterprises, LLC *or will be purchased by the Village of Napaimute*.

Program evaluation is quantifying and measurement of certain benchmarks and comparing them to the schedule. Weather and other factors are a constant consideration in any rural Alaska project schedule and can unduly affect or skew the best laid plans. The Native Village of Napaimute personnel have extensive experience in adapting to our often adverse conditions. It was in fact our employees that led the cooperative effort by several Middle Kuskokwim communities that established an ice road through

a massive ice jam that occurred in the Kuskokwim during November 2014. When and if such occurrences happen, action will be taken immediately to offset any impact said occurrence has to the schedule. Our progress will be evaluated by our adherence to the HUD-4125 (Attachment # 11) Implementation Schedule and HUD-4123 Cost Summary (Attachment #12).

Factor 1, Sub-factor 1.c. (up to 7 pts)

Financial Management

The financial management system of Napaimute Traditional Council complies with the financial management requirements stated in 2 CFR Part 200 and 24 CFR Part 1003. From its current and past project management, the Council is familiar the requirements and standards of the Federal OMB Circulars pertaining to financial management of federal funds, including allowable costs, audit requirements, and administration requirements.

The Napaimute Traditional Council has adopted financial management policies that comply with Parts 200 and 1003. These policies provide for: financial reporting, including regular income/expense reports to the Council for review. Accounting records include, but not limited to: check requests, procurement forms, purchase orders, check copies, received materials check-off list, vendor files, time cards with task allocation accounted for, receipts, and RFPs. We have implemented internal controls to ensure control and accountability for grant and discretionary funds, including double signers on all financial documents; data base demonstrating timelines for each report due for each funding source, when it was completed and who was responsible; clear job descriptions as to who is responsible for each phase of the financial management; and, budget vs. actual expenses quarterly reports which enable adjustments to be made quickly in expenses accountability.

Overseen by the Council, Director of Development and Operations, Mark Leary, will be responsible for all financial transactions related to ICDBG funds. Mark ensures all employees involved in any aspect of the Native Village of Napaimute's project comply and uphold the approved NVN Financial Policies and Procedures as well as be in compliance with all Personnel Policies and Procedures.

The Napaimute Traditional Council follows the requirements of OMB cost principles regarding allowable costs and is familiar with the time restrictions necessary for proper cash management to disperse federal funds. We utilize the QuickBooks Enterprise Accounting System as our bookkeeping software system. Each program/grant has a separate yearly fund account in QuickBooks to track income and expenses (classes). The proposed ICDBG grant funds would be treated accordingly. A detailed budget has been developed in a collaborative effort by our Administrative Support, Lisa Feyereisen, Director of Development and Operations, Mark Leary; reviewed and approved by the Tribal Council. When awarded, key line items (classes) will be entered into QuickBooks as the ICDBG 2016, 2017, and if required, 2018 Fund Accounts.

All purchases for the *From Timber to Trusses: Economic Development Project* will comply with the Napaimute Traditional Council Financial Policies and Procedures Manual Procurement guidance as adopted. (Attachment: #11).

The Project Manager, Joseph Evan will be responsible for the completion of all prepared procurement documents and purchase orders. He then submits the purchase order to the Director of Development & Operations for approval (a double signature document). In compliance with our procurement policies, if the amount exceeds our "small purchases" definition, appropriate competitive documentation will be attached to the purchase order. After approval, by the Director and Council President, it is submitted to the Napaimute Bookkeeper who processes the check. (All checks are double signature format). When a check is written the expense is entered into the appropriate funding category and class in the Napaimute Accounting System. After the purchase has been received, the Project Manager inventories materials requisitioned to materials received and places the documentation in the vendor file alongside all the above- mentioned documentation.

All original grant files are located in the Director of Development & Operations' office; all original financial documents are located in the Tribal Bookkeeper's Office; and all other original project

files will be located in the Napaimute Project Manager's office. Source documents will be maintained for the entire project including payroll, and all indirect costs supporting documentation.

Note: Napaimute Traditional Council has not been required to complete an audit, as federal funds expended in years prior to and including Fiscal Year 2015, do not meet the \$750,000.00 annual threshold. However, the Council completes a fiscal year-end close out of all of its books. It is anticipated that when the Native Village of Napaimute receives a 2016 ICDBG award, it will exceed the new A-133 audit 750,000.00 expenditure ceiling in the 2016 calendar year and as such has entered the expected pro-rated audit expenditure in the HUD-4123 Cost Summary and Itemized Project Budget.

Factor 1, Sub-factor 1.d.(up to 7 pts)
Procurement and Contract Management

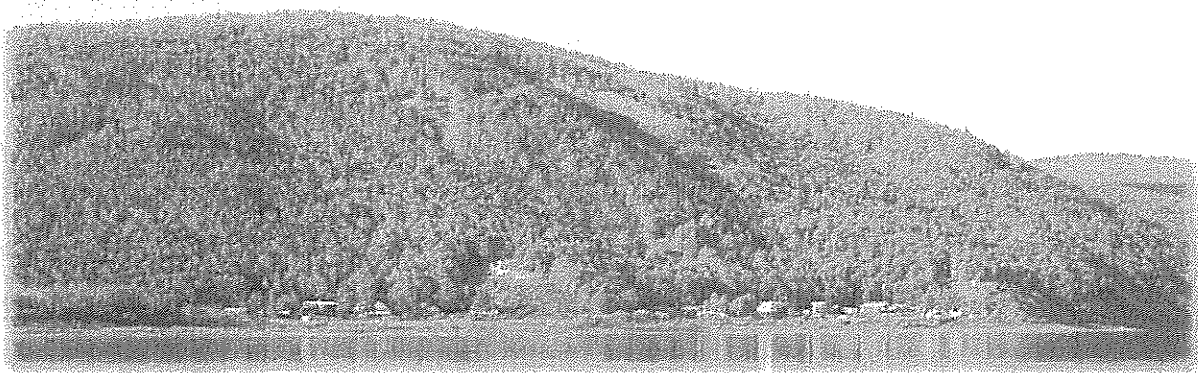
The Napaimute Traditional Council has adopted Procurement Policies and Procedures that comply with the procurement management requirements of 2 CFR parts 200 and 24 CFR Part 1003. The Procurement Policies and Procedures of the Council include the previously addressed Code of Conduct applicable to all Council business dealings and the Council's responsibilities for procurements. The Council has authorized the Director of Development & Operations to approve project purchases after the procurement for said purchases have followed the required policies. The purchase order/procurement request form has a process for determining the procurement method (small purchase, sealed bid, competitive bid or proposal, and sole source) and type of contract (fixed price or cost reimbursement) to use. The Council has established a threshold of \$1,000.00 for small purchases per OMB allowed procedures (Attachment #13: Native Village of Napaimute Financial Policies and Procedures).

Factor 1, Sub-factor 2
Past Performance

Rating Factor 2: Need/Extent of Problem (19 pts)

Factor 2, Sub-factor 1(up to 4 pts):
Need and Viability

Napaimute means "People of the Forest" in the Yupik Eskimo language. The Native Village of Napaimute is located on the north bank of the mighty Kuskokwim River; 160 miles upriver from Bethel and 350 air miles west of Anchorage. It is nestled within the Kuskokwim Mountain Range. It is situated at the intersection of the rugged river bluffs of the enormous glacier fed Kuskokwim River near where the tundra valley is carved out by the Holokuk, "Alukak" River.



The Kuskokwim River ambles through 750 miles of indescribable, mostly pristine raw country. It is the second largest river in Alaska and is the largest river in which both the headwaters and the delta are located within the state's borders. There is no access to this river basin by road and many of the prominent landmarks throughout the basin appear to never have been trod upon by humans. Still, people have inhabited this land for thousands of years and until the last century; life had been an ongoing struggle for survival between the Native people and the extremes of the environment. However, once contact was initiated between the Native people of the land and the people of the industrialized western culture, the struggle for survival was no longer humans against the environment. The struggle now is our people's attempt to balance the adaptation of technology and society's increased reliance upon it, the preservation of our lands, and the retention/renewal of our cultural moral fibers.

Although several hundred or more people can trace their roots to Napaimute, only a handful continued to maintain ties to the village once its western-style economic significance ceased. These few identified themselves so strongly with their ancestral home that they fought for and received federal recognition as one of the Alaska's Native Tribes. This federal status has enabled the Native Village of Napaimute to survive all these years, to grow and deliberately develop a community and business environment that supports and enables seasonal employment where none other exists in the Middle Kuskokwim. There were 39 original members who enrolled in Napaimute on the tribal recognition date. Today, with the addition of their descendants, the Tribe has more than doubled and is proud of its business growth and many other accomplishments.

For the past 25 years, those original members that remained in the area have worked at revitalizing the village. Bit by bit, we have reclaimed the land overgrown by grass and brush. We removed old refuse, torn down buildings too dilapidated to save, cut decade's worth of grass and willows, leveled the ground, and filled in holes. We have hauled many tons of supplies and equipment to Napaimute by boat, snow machine, plane, and even by truck over the frozen river ice. On this reclaimed land, several families have constructed permanent homes using locally sourced wood; planted gardens, set up smoke houses and steam baths, and worked toward the day when they could live there year round. The U.S. Census 2000 lists 16 permanent, seasonal occupied residences for Napaimute. Today there are over 25.

As Napaimute has slowly been brought back to life, so has its membership. More and more members have expressed the desire to return home. Many of the original members are older now and not constrained by careers. They now are able to look toward returning to Napaimute. Younger members, still raising families and disillusioned by the quality of life in more urban areas, want a safer place to live where more of our traditional values can be practiced. The potential development of the timber milling facility will make full time living at Napaimute completely feasible.

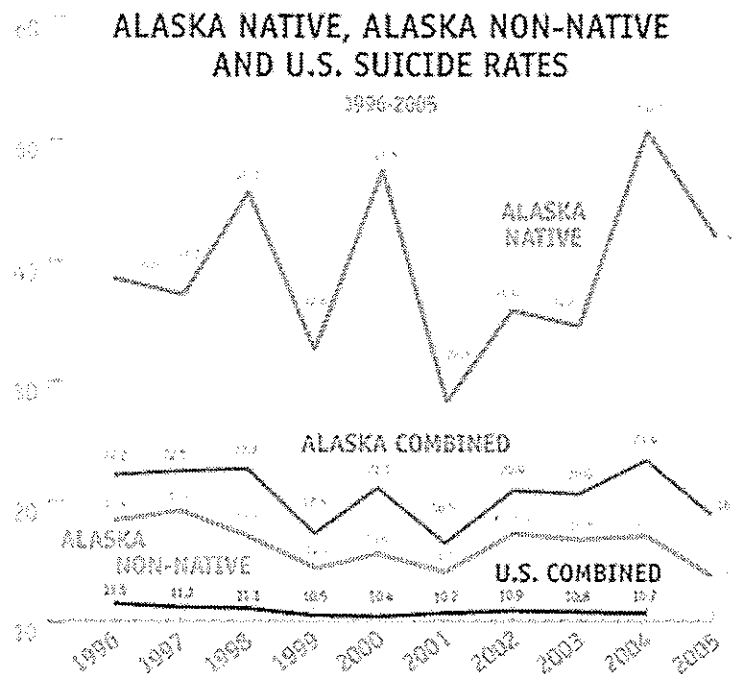
For the past several years the Napaimute Traditional Council has worked diligently to reach a land transfer settlement for community development from its parent village corporation – The Kuskokwim Corporation (TKC) that would fulfill the obligations of Alaska Native Claims Settlement Act, section 14(c)(3) ("ANCSA"), yet allow for maximum local (tribal) control over community lands. On April 12, 2006, after extensive negotiations, the TKC Full Board of Directors approved a land transfer of 650 acres directly to the Native Village of Napaimute and a minimum ANCSA 14(c)(3) re-conveyance of slightly less than 100 acres to the State Municipal Land Trustee (MLT). On the 650 acres of tribally-owned land two subdivisions containing 54 – 1-acre lots were surveyed and a home site program implemented. Today there are an additional 12 families actively developing their home sites in Napaimute.

There is land available to build upon as tribal members return to their roots. Access to land alone does not solve all issues impacting the return of our tribal members. There is a clash of two distinct world views, one of traditional subsistence living and the other based on a Western construct. Economic development directly supports our people and indirectly decreases mortality birth rates yet the world's highest suicide rate of young men aged 14-17 of any culture occurs in the Yukon Kuskokwim Delta! (See figure below). One of the villages within our region, Hooper Bay, population 1200, just experienced four suicides between the dates of September 24, 2015 through October 10, 2015. Although we are struggling

to understand ways to prevent this disease, the poverty rate, high unemployment, and lack of economic development in our area are contributing factors to this crisis.

This project will be a step in the path toward economic sustainability as Napaimute with its partners, will be recruiting, training, and employing local people from the harvest site. At the same time Napaimute will be facilitating the manufacturing of trusses to be utilized in the area of construction for much needed energy-efficient homes throughout the Yukon Kuskokwim Delta communities.

Alaska. Alaska Native and National Suicide Rates



Rates are age-adjusted per 100,000 population

* The Alaska rate for 2005 is preliminary.

** US rate for 2004 is preliminary and the US rate for 2005 is unavailable at the time of publication.

In total, a little over 15,000 people live in the Kuskokwim River Watershed, of which over 90% are Alaska Natives. Napaimute is known as the most inland Yupik Eskimo Village within the State. The Kuskokwim region is one of Alaska's most economically depressed regions. The State of Alaska has an average household income of \$62,854, per capita income of \$22,660 with a 6.2% of the population living under the poverty line. For the Kuskokwim region, the average household income is \$40,074 (64% of Alaska State average), per capita income \$12,993 (57% of Alaska State average), and 20% of the population live under the poverty line (322% more than Alaska average). The non-hub communities (all but Bethel, Aniak and McGrath) are more precarious yet, with an average household income of \$31,389 (50% of Alaska State average) per capita income \$7,984 (35% of Alaska State average), and 25% of the population lives under the poverty line (403% more than Alaska average). We are struggling desperately to survive economically.

In other words, our necessity for financial assistance is great; the benefit that economic development would provide the Tribe and our Middle Kuskokwim area is immeasurable, and low cost energy efficient housing is critical to the sustainability of our tribal villages. Napaimute has developed

the vision, capacity, and partnerships necessary to manage the economic development project proposed in this application.

Factor 2, Sub-factor 2

Project Benefit:

Factor 2, Sub-factor 2.b. Economic Development Projects (up to 12pts):

Due to the remoteness of our area, and the transient nature of our Tribe, there exists an incompleteness of US Census information. The actual timber harvesting location and the proposed location of the Napaimute Sawmill at the Lower Kalskag site, our employee pool will be generated from the entire region of The Kuskokwim Corporation. Emphasis will be on Upper and Lower Kalskag with a combined population of 500. All of our current timber harvest employees come from these two communities. We are especially focused on providing employment to young adults residing in the Middle Kuskokwim. Once the wood for trusses is delivered, an entire new employment chain will expand throughout the boundaries of the Yukon Kuskokwim Housing Authority.

For reference, The Kuskokwim Corporation (TKC) was formed on April 25, 1977, when the following Alaska Native Claim Settlement Act (ANCSA) small village corporations located along the middle part of the Kuskokwim River merged: Aniak, Limited, Chuathbaluk Company, Georgetown, Inc., Kipchaughpuk, Limited, Lower Kalskag, Inc., Napaimute, Limited, Red Devil, Inc., Sleetmute, Limited, Stony River, Inc. and Upper Kalskag, Inc. Prior to the merger, the companies operated independently, each with a separate board of directors and staff. However, the total cost of operating 10 small companies was monumental. As a solution to the expenses, the idea of forming The Kuskokwim Corporation was presented. By merging the 10 small companies into one large corporation with one board and set of staff, operating costs and expenses would be reduced and a combined income would result in larger earnings for shareholders. Additionally, a larger company could attract qualified staff to run the corporation more efficiently. While resources among the individual companies were limited, pooling together resources amounted to significant capital and land assets. With the significant benefits of the potential merger, the plans moved forward and The Kuskokwim Corporation was formed. As such, the corporation operates in the best interests of all shareholders with a commitment to honoring traditions, enriching lives and supporting shareholders through opportunities, dividends and employment. TKC owns approximately one million acres of land along two hundred miles of the Middle Kuskokwim and must always be included in any economic development planning centered on the use of local natural resources (timber).

The Native Village of Napaimute has a long history of working closely with The Kuskokwim Corporation for the benefit of the people of the region and has subsequently secured its support for our *Timber to Trusses Project* (Attachment #14 TKC Letter of Support) proposal. Below is a snapshot of important economic information obtained directly off the Bethel Census Area website for the Middle Kuskokwim Region (TKC):

- The Chuathbaluk, AK unemployment rate was 36.0%.
- Chuathbaluk, AK has a poverty rate of 23.1%.
- Lower Kalskag, AK has a poverty rate of 13.2%.
- The median worker income in Lower Kalskag, AK is \$18,750.
- Lower Kalskag, AK unemployment rate of 34.7%
- The poverty rate for Upper Kalskag, AK is 18.9%.
- The median worker income in Upper Kalskag, AK is \$16,563.
- Upper Kalskag, AK unemployment rate of 26.7%.
- The median worker income in Red Devil, AK is \$2,499.
- Sleetmute, AK unemployment rate of 36.5%.
- The poverty rate for Stony River, AK is 81.0%.
- In Stony River, AK, the median worker income is \$5,500. This is lower than the national average of \$29,701.

According to the to the HUD Tract Census information Napaimute is described as: Geoid, 02050000300, Block Group 2, Census Tract 3, Bethel; Census Area, AK Low-Mod 75 %.

Rating Factor 3: Soundness of Approach (36 pts)

Budget and Cost Estimate

Factor 3, Sub-factor 1 (up to 14 pts):

Description of and Rational for Proposed Project

The Section 3 of Housing and Urban Development Act of 1968 required that recipients of certain HUD financial assistance, including the 2016 ICDBG, to the greatest extent possible, provide job training, employment, and contract opportunities for low- or very-low income residents in connection with projects and activities in their neighborhoods. The *From Timber to Trusses Project* exemplifies and embodies the requirements of Section 3. The proposed funding includes on-the-job training for local and regional low-income residents and will help nurture local economic development. This is not a stand-alone project thus the partnerships formed with AVCP, Inc., AVCP Regional Housing Authority, The Kuskokwim Corporation and the University of Alaska Cold Climate Housing Research Center. This project is a fiscally responsible economic development proposal that provides numerous job and training opportunities with peripheral impact.

In the Yukon-Kuskokwim Delta, the housing crisis grows worse by the day. The region, dominated by winds gusting off the Bering Sea and soggy, permafrost-prone ground conditions, has some of the lowest-quality housing stock in Alaska, a huge percentage of which needs to be replaced as soon as possible. Homes in the region are often drafty, overwrought by mold and lacking in adequate water and sewer facilities. On top of that, they are small – on average, some of the smallest homes in the state are found in the Y-K Delta. Families in the Kusilvak (formerly known as Wade-Hampton) Census Area face the nation's most extreme levels of overcrowding, and neighbors in the Bethel Census Area don't fare much better. These rates are higher than the national average by a factor of 10 or more.

The region is projected to grow at a rate greater than that of the rest of Alaska over the coming decades, which will only exacerbate existing housing issues. The Census Bureau estimates our population is growing by 400 people annually. That's equivalent to adding another village to our region each year.

The Native Village of Napaimute has a unique opportunity to partner with the Association of Village Council Presidents (AVCP) Inc. and AVCP Regional Housing Authority (RHA) to address a barrier to the construction of a highly energy efficient housing prototype. AVCP commissioned a study to examine the feasibility of manufacturing home-construction components in the region, using locally sourced lumber, as a means of lowering the barriers to housing development while providing local jobs and bolstering the fledgling regional timber industry. Specifically, AVCP proposes to build an integrated truss plant in Bethel, at the site of a former fish-processing facility on the banks of the Kuskokwim River. The product, integrated trusses, are a structural component integral to the construction of a highly energy-efficient style of housing developed by the University of Alaska Cold Climate Housing Research Center (CCHRC) in Fairbanks, prototypes of which are already improving the lives of residents in Atmautluak, Crooked Creek and Galena, to name a few. The Native Village of Napaimute is a member of the CCHRC. CCHRC's integrated truss homes boast 6-Star energy ratings through the State of Alaska's Building Energy Efficiency Standards program and can be built with a variety of foundation types depending on local ground conditions.

Moving from an older home typical of the region into an integrated truss home will net thousands of dollars in annual energy savings, not to mention safer indoor air quality. Integrated trusses are whole-home trusses; as opposed to traditional construction, which makes use of roof and floor trusses and wall joists, the integrated truss combines all of these elements in one assembly that looks a bit like the house's cross-sectioned skeleton. Integrated trusses facilitate a quicker, less technical build; a typical integrated truss home can be framed in one day, without a large crew or specialized equipment or labor.

There are many reasons to be optimistic about Napaimute's partnership with AVCP to manufacture the lumber needed to construct trusses. The truss plant's competitive advantages will be its ability to bring this specialized, engineered-for-Alaska style of home to the region on a much broader scale, as well as the significant cost savings associated with not having to ship large structural components into the region via barge. *(Between 50-60 percent of the cost of home construction in the region is attributable to shipping.)* AVCP working in partnership with Napaimute's sawmill, located on the timber harvesting site below Lower Kalskag on land leased from TKC, and provides the opportunity to use local, Kuskokwim River white spruce to manufacture the trusses. This option features the twin benefits of providing local jobs in a region hungry for opportunity and job creation and helps to strengthen the ongoing efforts of organizations like AVCP, Inc., the Yukon Kuskokwim Economic Development Council (YKEDC), The Kuskokwim Corporation, AVCP Regional Housing Authority and the Native Village of Napaimute to establish a viable forestry and wood products industry in the Region.

Factor 3, Sub-factor 2 (up to 10 pts):
Budget and Cost Estimates

Budget Narrative

1. Personnel and Job Descriptions:

Positions would be created as soon as HUD/ONAP has issued the Notice to Proceed and funds are available for drawdown in the LOCCS system. All four new positions (we currently have three permanent seasonal positions) would be hired within the first year of the grant and continue after the closeout of the grant. Employment would begin with the dismantling of the saw mill and continue on and off throughout the winter as conditions permit, with an accelerated timber harvest taking place in March and April as the days get longer and the temperatures moderate. This is the optimal time for harvesting timber – no leaves, no bugs, the wood stays clean, and equipment can be driven easily over the frozen ground. Our timber harvest goal with the additional employees funded through this project is 600 cords and 55,000 board feet annually. This volume will allow us to provide employment for many years to come. Job descriptions follow:

Director of Operations and Development:

Throughout this project the Direct will be responsible for serving as the point of contact between the Council, contracted professionals, Project Manager, project administrative support and granting agency. This position is also responsible for project financial planning and adjustments (oversight), project grant compliance, project scheduling, and human resources oversight (Matching).

Project Manager

The manager is knowledgeable in a vast array of capacities; however in the areas of forestry, heavy equipment operations and maintenance, and milling lumber will be his focus. Another quality important in this position is management skills. The project manager will be responsible for assisting the Director in workforce oversight, material takeoff, bidding materials, procurement compliance, project compliance inspections, quality control, and managing/adjusting project schedule. The manager is responsible for monitoring logging operations to identify and solve problems, improve work methods, and ensure compliance with safety, company, and government regulations. The project manager will also plan and schedule logging operations, such as felling or bucking trees or grading, sorting, yarding loading, and processing of logs. This position coordinates the dismantling, moving, and setting up equipment at new work sites (New Hire).

Project Administrative Support

The project administrative support will assist in the role of building capacity in regards to mandatory NAHASDA/ONAP reporting requirements and facilitate all necessary documentation, reviews, posting

and compliance. They will be responsible to assure that this project was completed on schedule, within budget, and that all required reports and granting agency documents be submitted in compliance and accurate (Matching).

Bookkeeping

The bookkeeper will reconcile and organize our daily financial records and monthly bank statements; produce monthly and annual financial statements; and, provide full payroll services including completing of federal/state quarterly tax returns, insurance reports and payroll tax deposits. They will be responsible for payroll, taxes, providing current profit and loss statements, compilation of procurement and vendor files, and perform accurate frequent drawdowns as needed.

Harvester Equipment Operator (HEP)

The person in this position is responsible for the safe, efficient operation of specialized timber harvesting machinery to fell trees and prepare them for transport. They are responsible for the shearing, de-limbing, and cutting-to-length of trees. In addition, they may need to operate the skidder, bull dozer, or forwarder, which drag chopped trees to processing and transport areas. This job requires a high degree of training in the computer programming and manipulation of the harvester which is a sophisticated piece of equipment. Stamina, attention to detail and the ability to listen to and follow detailed instructions are required as well (New Hire).

Laborer

The duties of this position include finish cutting and trimming of logs with power chainsaws. Laborers will also operate firewood processor, package chopped firewood, band round logs into bundles in preparation for transport by barge or truck, and assist equipment operators with regular maintenance and repairs (New Hire).

<u>Position (# of positions)</u>	<u>Hourly</u>	<u>Hours</u>	<u>Annual Total</u>
Director (1)	\$45.00	520	\$23,400.00*
Project Manager (1)	\$32.00	2080	\$66,560.00
Administrative Support (1)	\$32.00	104	\$3,328.00*
Bookkeeping	\$55.00	260	\$14,300.00
HEP (2)	\$30.00	2080	\$64,000.00
Laborer (3)	\$25.00	2080	<u>\$104,000.00</u>

TOTAL			\$275,588.00
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Matching	--		\$26,728.00*
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Subtotal Salary ICDBG Funds Requested			<u>Subtotal</u> \$248,860.00
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*Indicates Salaries which will be paid in matching (In-kind) funds.

2. Fringe

Fringe consists of Federal Withholding, State Unemployment Insurance, Workers Compensation, FICA and FICA/MED as required by law to be calculated at a rate of 37% of salaries.

<u>Total ICDBG Wages</u>		<u>Percentage</u>		<u>Subtotal</u>
\$248,860.00	X	.37	=	\$92,078.00
Matching Funds set aside for Fringe \$26,780.00	X	.37	=	\$9,909.00*

3. Travel

(a) Travel to Washington State for training of the two Harvester Equipment Operators (HEP) for one week.

<u>Air Fare</u>	<u>Per Diem</u>		<u>Days</u>		<u># of Travelers</u>		<u>Subtotal</u>
(\$1,400.00 +	(\$195.00	x	6))	X	2	=	\$5,140.00

4. Supplies

Supplies are for the ICDBG Programs only. Price average is for an immediate purchase out of Anchorage. Price includes the average cost of shipping and any other fees.

	<u>Subtotal</u>
(a) Lap Top Computer to be used for grant compliance and bookkeeping. =	\$1,000.00
(b) Printer, ink cartridges, and paper. =	\$200.00
(c) Fuel =	\$5,000.00
(d) Misc. Pens, etc. paper =	\$200.00
Subtotal	\$6,400.00

5. Equipment:

sawmill	20,000
mill building	12,000
planer w/ building	13,000
generator w/ building	6,000
edger w/ engine	2,500
32' X 60' lumber storage building	17,000
40' X 65' equipment storage building	3,000
re-sawer	35,000
Semi-truck w/ 40' trailer	30,000
Loader	40,000
small office building	25,000
John Deere 200LC	
Harvester(\$9,600/week x 16 weeks)	<u>153,600*</u>
Total	357,100
Subtotal from ICDBG	\$203,500.00

6. Contractual Expenses:

Attorney fees for legal review of agreements	10,000
Timber Quality Inspector	10,000
Pro-Rated (50%) of A-133 Audit	10,000
Subtotal	\$30,000.00

7. Other:

	<u>Subtotal</u>
Insurance (matching)	\$20,000.00*
Gravel for site prep to be barged from upstream site	\$14,022.00

Matching Funds

	<u>Project Total</u>
	\$810,237.00
-	\$210,237.00*
	<u>Subtotal</u>

ICDBG Funds Requested

\$600,000.00

BUDGET JUSTIFICATION/ COST BREAKDOWN

Description	ICDBG Estimated	NVN (match) Estimated	Total
Personnel	\$248,860.00	\$26,728.00	\$275,588.00
Fringe	\$92,078.00	\$9,909.00	\$101,987.00
Travel	\$5,140.00	0	\$5,140.00
Equipment	\$203,500.00	\$153,600.00	\$357,100.00
Supplies	\$6,400.00	0	\$6,400.00
Contractual Expenses	\$30,000.00	0	\$30,000.00
Other	\$14,022.00	\$20,000.00	\$34,022.00
Total	\$600,000.00	\$210,237.00	\$810,237.00

The cost estimates for the project were completed by Lisa Feyereisen and Mark Leary.

Requested	\$600,000.00
Matching	\$210,237.00

Project Total	\$810,237.00
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The budget and cost are reasonable as the standards for the Bethel Area.

Please see Attachment #12: Form *HUD-4123 Cost Summary*

Factor 3, Sub-factor 3 (12 pts):
Commitment to sustain Activities

Factor 3, Sub-factor 3.c (up to 12 pts):
Economic Development Projects
Commitment to Sustain Activities

The Native Village of Napaimute and the Association of Village Council Presidents, after preliminary discussions concerning the financial feasibility of manufacturing specialized proto-type trusses, contracted an outside source to determine whether or not the project could proceed effectively. They contracted the service with Samuel Callen, Associate Director of Business Development at the University of Alaska Center for Economic Development. In this role he leads the formation of business plans, feasibility studies, and other technical assistance activities. His primary clients include tribal and municipal governments, Alaska Native Corporations, and non-profit organizations. He graduated Summa Cum Laude from Ferris State University with a Bachelor's degree in Business Administration and a minor in Finance. He is currently an MBA candidate at Harvard Business School in Cambridge, Massachusetts.

Mr. Callen produced very encouraging analysis (Attachment #15, #7, #10, and #17) which after the public review, Council discussion, and preliminary partnership formation with support from AVCP, (Attachment #16), AVCP Regional Housing Authority (Attachment #9), and The Kuskokwim Corporation (Attachment #14). Napaimute is fully committed to the sustainment of this project. We have a well-proven track record of completing sustainable projects throughout the years in our region and in fact always strive to bring these projects to the next level. The years of experience gained from our humble beginnings in the firewood business bring us to this point: pursuit of the opportunity to use our local timber resources for an even greater regional benefit. That puts local people to work, using local renewable resources, in direct support of our regional housing authority's efforts toward providing affordable energy efficient housing throughout the Yukon-Kuskokwim Region.

Job Creation/Employment

This project will employ force account labor practices. It is anticipated that during the 2016-2017 milling and truss assembling season, four to five additional Middle Kuskokwim Tribal Members will be employed as laborers. Additional jobs created of administrative nature include, but will not be limited to the hiring of a Project Manager. Napaimute Traditional Council Employment Policies and Procedures stipulate and describe Tribal member preference hiring policies and over 75% of the jobs created will be made available to low/moderate-income individuals. The Employee Manual describes hiring policies and procedures are available for examination on the Document's Shelf, located in the Director of Development & Operations' office.

Promotes Energy Efficiency

Energy Consumption

The product, integrated trusses, made from locally produced lumber, provided to the regional housing authority for the construction of low to moderate income tribal houses are a structural component integral to the construction of a highly energy-efficient style of housing developed by the Cold Climate Housing Research Center (CCHRC) in Fairbanks. Prototypes are already improving the lives of residents in Atmautluak, Crooked Creek and Galena, to name a few. CCHRC's integrated truss homes boast 6 Star energy ratings through the State of Alaska's Building Energy Efficiency Standards program and can be built with a variety of foundation types depending on local ground conditions. Annual heating fuel consumption in these homes is reduced by as much as 80%. The following is taken from the Truss Sawmill Business Plan, page 16:

Data available from CCHRC indicates that the typical home in the Y-K Delta uses, on average, approximately 600-800 gallons of heating fuel each year. At a rate of \$7 per gallon, this comes at an annual cost of approximately \$4,200 to \$5,600 per year. It is

Sustainability

Rating Factor 4: Leveraging Resources (8 pts)

Napaimute's match contribution is \$210,237.00.

$$210,237.00/810,237.00=26\%$$

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Factor 5, Sub-factor 1 (up to 2 pts):

Coordination

The Napaimute Traditional Council has undertaken several successful partnerships in the past, including but not limited to: Cooperative Agreements with the State of Alaska Department of Fish and Game, State of Alaska Department of Natural Resources, Pacific State Marine Fisheries Commission, Environmental Quality Incentives Program (EQIP) contract with the NRCS, AVCP Federal Low Income Heating Program (LIHEAP), The Kuskokwim Corporation Timber Sale Agreement, and Winter Ice Road Transportation Cooperative Agreement with the City and Tribal governments of Aniak, Upper and Lower Kalskag.

Indian Community Development Block Grant funds will be used as a catalyst for cementing our partnership with AVCP, Inc., The Kuskokwim Corporation, and AVCP Housing to supply the much needed timber in their Truss manufacturing plan. AVCP has dedicated time and money for the actualization of this plan and signed an MOU indicating their willingness to enter into this partnership. As part of the financial analysis for this plan, AVCP directed the University of Alaska, Center for Economic Development, Samuel Callen, to analyze the positive aspects of this partnership and The Kuskokwim Corporation affirmation of a partnership in this project.

In order to use local lumber, AVCP may work with Nelson Enterprises LLC, which operates a sawmill in Chuathbaluk. The mill's owner and the Native Village of Napaimute, which runs a logging operation to meet firewood demand in the region, would work as a team to supply the truss plant with milled and planed lumber for use in its trusses. Timber would be harvested from lands owned by The Kuskokwim Corporation, which has expressed willingness to provide lumber for this purpose.¹*The saw mill is not currently operating* and would need to hire workers and add some equipment in order to fulfill the truss plant's demand. Due to the length of time it takes to dry wood to the required levels, the mill would need to begin operations a year before the truss plant could accept its products. During this first year, the plant could fulfill its needs by ordering from a supplier outside the region or simply delay the start of operations. The specifics of how the sawmill would operate and recommendations for its working relationship with the truss plant are outlined in considerably greater depth in section X of this report.

Nelson Brothers Enterprises, LLC has also expressed a desire to sell the complete saw mill operation to the Native Village of Napaimute.

In recognizing these partnerships will enhance our tribal community's viability, Napaimute has already spent numerous hours in discussion, public meetings, and negotiations to be prepared and ready to finalize these partnerships when funding becomes available.

Factor 5, Sub-factor 2 (up to 8 pts):

Outputs, Outcomes, and/or Goals

Outputs:

*The Napaimute Traditional Council will be able to provide at least 5 jobs for low to moderate income Middle Kuskokwim Region tribal members.

*The Napaimute Traditional Council will provide technical training for 2 positions in which the laborers will be tasked as "operators" of a John Deere 200LC Harvester.

¹ Meeting with Andrea Gusty, The Kuskokwim Corporation, 03/26/2015

*At the completion of the project, an appropriate sized sawmill will be purchased and relocated to the Lower Kalskag Timber Harvest Site.

*Napaimute Traditional Council will be the owners and operators of their own truss lumber sawmill.

*At the completion of this project, Napaimute will have transported an agreed upon number of 2"x 6"x 20' pieces of lumber to the AVCP Housing Trusses Manufacturing Site in Bethel.

Outcomes and Goals:

*Support and promote the viability of the Native Village of Napaimute Tribe.

*Improve Napaimute and other Middle Kuskokwim Residents (low to moderate income) health and safety by providing economic stability.

*Improve our tribal members and those of our surrounding community's standard of living by providing income to enable our members to live in standard housing thereby increasing home ownership rates.

*Improve energy efficiency for AVCP housing units.

*Increase self-sufficiency of employees.

*Increase the ability of Tribal Self-Determination

*Increase quality of life by directly decreasing heating costs in future home owners in our region.

* Support the YKEDC's goal of "ensuring that regional entrepreneurial efforts are supported and bring relevant businesses and people together to maximize opportunities".



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

ALASKA REGION

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(907) 271-4086 (direct) or (800) 645-8465 options 4, 2 (toll-free)

July 1, 2015

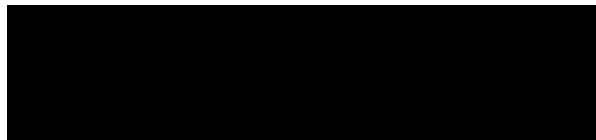
Native Village of Napaimute
Chief Delores Matter
Devron Hellings, President
Bethel Office
P.O. Box 1301
Bethel, Alaska 99559

Dear Honorable Chief Delores Matter & President Devron Hellings:

The Native Village of Napaimute is in good standing with their status as a Federally Recognized Tribe.

If you have any questions, or if we can assist you in any way, please contact me at (907) 271-4086 or email me at Dolores.Ayotte@bia.gov.

Sincerely,



Dolores M. Ayotte
Self-Determination Officer



P.O. Box 1901
Bethel, AK 99555
Ph (907) 545-2057 (Bethel) / (907) 222-5056 or 222-6064 (Nap.)
(907) 545-2057 (Cell)
Email: napaimute@gn.net
Website: napaimute.org

Resolution No. 16-09:

**A RESOLUTION OF ASSURANCES THAT THE NATIVE VILLAGE OF NAPAIMUTE
DEMONSTRATES COMPLIANCE WITH TITLE II OF THE CIVIL RIGHTS ACT 1968.**

- WHEREAS: The Napaimute Traditional Council is the tribal governing body for the Native Village of Napaimute, and;
- WHEREAS: The Native Village of Napaimute has demonstrated their compliance with non-discrimination and other requirements Title II of the Civil Rights Act of 1968, known as the Indian Civil Rights Act; Section 109 prohibitions against discrimination based on age, sex, religion and disability; the Age Discrimination Act of 1975; and Section 504 of the Rehabilitation Act of 1973, and;
- WHEREAS: The Native Village of Napaimute has never been the subject any alleged violations of the above mentioned civil rights, and;
- WHEREAS: The Native Village of Napaimute believes firmly in nondiscrimination and is supportive and respectful of civil rights for all regardless of age, sex, religion and/or disability.

NOW THEREFORE BE IT RESOLVED THAT the Native Village of Napaimute is acting on behalf of tribal members in the assurances of compliance with the civil rights act and non-discrimination of all.

CERTIFICATION

This resolution was passed by the Napaimute Traditional Council, of which a quorum was present, with a vote of 2 yes; and 0 no; and — abstaining, on this 11th day of May, 2016.

Signed:

Devron K. Hellings, President

Attested By:

Marcie Sherer, Vice President



State of Alaska

Bethel, Alaska

16-007541-2887 (Res.) / 007541-5058 or 222-5088 (Hq.)

007541-2887 (Hq.)

Email: napaimute@alaska.gov

Website: www.alaska.gov

Resolution No. 16-10

A RESOLUTION AUTHORIZING THE SUBMISSION OF A SUSTAINABLE EMPLOYMENT AND ECONOMIC DEVELOPMENT FUNDING PROPOSAL TO THE OFFICE OF NATIVE AMERICANS: FY2016 INDIAN COMMUNITY DEVELOPMENT BLOCK GRANTS (Public Participation Assurances)

- WHEREAS: The Napaimute Traditional Council is the tribal governing body for the Native Village of Napaimute, and;
- WHEREAS: The Native Village of Napaimute has a documented genuine need for sustainable employment and economic development, and;
- WHEREAS: The Native Village of Napaimute has determined, through community involvement that developing and strengthening sustainable employment and economic development opportunities for the people of our region is a clear and significant priority, and;
- WHEREAS: The Native Village of Napaimute has solicited the comments, ideas, suggestions and support of the residents of Napaimute in the planning process for the FY2016 Indian Community Development Block Grants Grant Application; and
- WHEREAS: With funding, the Native Village of Napaimute will provide employment at the purchased sawmill (and support buildings) and relocate it to wood sites where it will operate harvesting and milling timber into truss lumber; dry/store the truss lumber in preparation for transport it to the AVCP Truss Manufacturing location in Bethel, that will in turn provide sustainable employment and economic development opportunities for our under-served and economically challenged people, and;

NOW THEREFORE BE IT RESOLVED THAT the Native Village of Napaimute is acting on behalf of tribal members in strengthening the Tribal Government has made public notice about proposed project with an

opportunity to comment by all village residents through public monthly meetings and a posted notice of our intent to apply for the FY2016 Indian Development Block Grant funding.

CERTIFICATION

This resolution was passed by the Napaimute Traditional Council, of which a quorum was present, with a vote of 5 yes; and 0 no; and — abstaining, on this 18th day of May, 2016.

Signed:

Devron Hellings, President

Attested By

Shelly A. Henry, Secretary



1101, Box 1901, Bethel, AK, 99506
Tel: (907) 542-2867 / (907) 222-5018 or 222-4084
Email: napaimute@gn.net
Website: www.napaimute.org

16-11
RESOLUTION 18-11

A RESOLUTION DEMONSTRATING THE COMMITMENT AND BELIEF OF THE NATIVE VILLAGE OF NAPAIMUTE THAT ITS ECONOMIC DEVELOPMENT PROJECT: "TIMBERS TO TRUSSES" IS VIABLE AND SUSTAINABLE BEYOND THE GRANT LIFE FUNDING.

WHEREAS, The Native Village of Napaimute is an Alaska Native Village recognized as an Indian tribe pursuant to the previous Public Law 93-638: Indian Self Determination and Education Assistance Act (88 Stat. 2203, 25 U.S.C. 450 et seq.), also pursuant to Public Law 95-608, Indian Child Welfare Act, 25 CFR 23.26; and

WHEREAS, the Napaimute Traditional Council is the federally- recognized Tribal Government of the Native Village of Napaimute; and

WHEREAS, The Napaimute Traditional Council has competent, knowledgeable and experienced administrative capacity and the full council support to operate this project; and

WHEREAS, The Napaimute Traditional Council recognizes the identified need for locally milled lumber as a critical component for providing energy efficient housing in our region while employing local workers; and

WHEREAS, Samuel Callen, University of Alaska Anchorage, Center for Economic Development completed an independent financial analysis this project, "Timber to Trusses" and found that it is a sustainable economic development project with an excellent chance for financial success; and

NOW THEREFORE BE IT RESOLVED THAT, The Napaimute Traditional Council accepts the findings of Samuel Callen's review and analysis that its "Timber to Trusses" project is economically viable and it believes that the project is also sustainable beyond the project funding life, and

BE IT FURTHER RESOLVED the Native Village of Napaimute is acting on behalf of tribal members to strengthen its economic vibrancy and self-determination its submission of the "Timber to Trusses" Economic Development Project to the Office of Native Americans through its 2016 Indian Community Development Block Grant.

CERTIFICATION

This resolution was passed by the Napaimute Traditional Council, of which a quorum was present, with a vote of 5 yes; and 6 no; and — abstaining, on this 18th day of May 2016.

Signed: [Redacted]
Devron Hellings, President

Attested By: [Redacted]
Shelly P. Leary, Secretary



P.O. Box 190

Bethel, AK 99540

Phone: (907) 544-2457 (Bethel) / (907) 222-9056 or (222-6054) (Naini)

E-mail: napaimute@alaska.net

Website: www.napaimute.ak.us

RESOLUTION 16-12

A RESOLUTION COMMITTING RESOURCES OF THE NATIVE VILLAGE OF NAPAIMUTE TO THE ECONOMIC DEVELOPMENT PROJECT: "TIMBER TO TRUSSES" BEING SUBMITTED UNDER THE FY2016 INDIAN COMMUNITY DEVELOPMENT BLOCK GRANT.

WHEREAS, The Native Village of Napaimute is an Alaska Native Village recognized as an Indian tribe pursuant to the previous Public Law 93-638: Indian Self Determination and Education Assistance Act (88 Stat. 2203, 25 U.S.C. 450 et seq), also pursuant to Public Law 95-608, Indian Child Welfare Act, 25 CFR 23.26; and

WHEREAS, the Napaimute Traditional Council is the federally-recognized Tribal Government of the Native Village of Napaimute; and

WHEREAS, The Napaimute Traditional Council, in response to community input, has identified the "Timber to Truss" Economic Development Project is a top priority for the Native Village of Napaimute; and

WHEREAS, The Napaimute Traditional Council is committed to providing the resources as described in its proposal as fund match for the expansion of this economic development project, "Timber to Trusses"; and

WHEREAS, The Napaimute Traditional Council assures and commits that said matching funds will be made available as part of the funding requirement of its proposal, "Timber to Trusses" project with match being leveraged from its discretionary funds and/or leveraged matching funds off no less than the amount of 25% of total project cost; and

BE IT FURTHER RESOLVED that these funds will be available when needed for successful project completion; and

NOW THEREFORE BE IT RESOLVED THAT the Native Village of Napaimute is acting on behalf of tribal members in committing resources and funds strengthening the Tribal Government, with village residents and tribal members included in the planning process.

CERTIFICATION

This resolution was passed by the Napaimute Traditional Council, of which a quorum was present, with a vote of 5 yes; and 0 no; and — abstaining, on this 18th day of May 2016.

Signed:

Devron Helling, President

Attested By:

Shelly P. Healy, Secretary



*P.O. Box 1301
Bethel, AK. 99559
Ph: (907)543-2887(Bethel) / (907)222-5058 or 222-6084(Nap.)
(907)543-2877 (Cell)
Email: napaimute@tci.net
Website: www.napaimute.org*

RESOLUTION 15-07

CODE OF CONDUCT

A. General Policy Statement:

It is the policy of the Napaimute Traditional Council to conduct its business in accordance with the highest ethical standards in order to merit the confidence and trust and respect of Tribal Members, the State and Federal governments and their agencies, and the public in general.

Tribal Council Staff and Council members and volunteers shall conduct their personal affairs and manage their personal business transactions in a manner that does not result in adverse comment from the public, or in any way damage the Tribe's reputation.

This policy applies to all Tribal Council Members, employees, volunteers or contractors ("Individuals") working or contributing in any capacity at or for the Napaimute Traditional Council.

B. Enactment

This policy will be adopted by the Napaimute Traditional Council as attested to in the last statement and a copy of this Code of Conduct shall be signed by each and every Officer, Council member or employee of the Council and placed in their personnel files and a copy retained by said Officer, Council member, or employee for their own reference.

C. Administrative Code of Conduct:

A violation of the Napaimute Traditional Council Code of Council Member Ethics is a violation of the Napaimute Traditional Council Code of Conduct.

A violation of the Drug Free Workplace requirements of Federal and State Regulations is a violation of the Napaimute Traditional Council Code of Conduct.

In addition, Federal Statute requires compliance with 24CFR Parts 84 and 85, consistent with regulations governing specific programs that the Napaimute Traditional Council participates in, and as the Napaimute Traditional Council also desires to participate in said programs, the following specifics of the Code of Conduct are adopted and incorporated into the Complete document.

C1. The Napaimute Traditional Council ("Council" hereafter) hereby prohibits real or apparent conflicts of interest that may arise among Officers, Council members, employees or agents.

C1.1. If a situation seems unavoidable, then the individual involved must report the conflict to the President of the council or if the conflict involves the President, then he or she must notify the Council of the apparent impending conflict and seek their approval to continue. In such case the President must disallow his or her own vote on the matter.

C2.. No Employee, Council Officer or agent of the council will participate in the selection, award or administration of a contract supported by Federal or State funds, if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when; 1. the employee, officer, or agent, 2. any member of his immediate family, 3. his or her partner, or 4, an organization which employs or is about to employ, or will employ, any of the above, has a financial interest or other interest in the firm selected for award.

C3. The Council hereby prohibits the offer, solicitation, or acceptance of gifts or gratuities by Officers, Council members, employees or agents or their immediate families, for their personal benefit, in any form in excess of One hundred dollars (\$100.00) from the general public. Except that ANY gratuities, favors, or anything of monetary value is prohibited when dealing with contractors, potential contractors, or parties to sub agreements, currently doing business or planning to, or soliciting business with, or for, the Napaimute Traditional Council.

C3.1 Specific exception to this requirement may be made if prior permission is granted by the President or acting President of the Council to offer a meal, non-alcoholic refreshment, or entertainment of reasonable value involving no more than ordinary amenities, in order to reciprocate in the course of planned bona fide business discussions, or, those received at holiday time, weddings, retirement or funerals. Exception may be made to accept such gifts if allowed by the President or acting President but only up to the \$100.00 gratuity limit and those may not be solicited in any case.

If the President or acting President feels that the gift or gratuity is unacceptable or inappropriate, then that gift may shall be returned to the donor or donated publicly to a bonafide charity.

C4. A Conduct violation is considered minor in nature if said violation might be inadvertent, not violent towards other people, out of character, or involving goods or monies of less than \$500.00. The incident or violation is not minor if it is a crime, or involves: \$500.00 or more, the injury or potential injury to any person (e.g., physical, emotional, defamation, harassment, etc.), significant exposure to the Council's finances or assets or the probability or likelihood of a repeat occurrence.

D. Compliance and enforcement:

D.1 Any suspected violation or alleged violation of this Code of Conduct, the Code of Ethics, or the Drug Free Workplace policies by a Councilmember, employee, or subcontractor or agent, must be reported to the President. Any Tribal member or member of the General Public, contractor or supplier, is eligible to report such a suspected or alleged violation.

If at any time the President, or vice President, (if the incident involves the President), may consult an attorney at Council expense, if he or she deems it prudent or necessary, said attorney to only assist and represent the Council and/or the Ethics Committee.

If the suspected or alleged violation involves the President or any other council Member, that member must recuse him or herself from any and all participation in the investigative process or determination or enforcement of penalties, except to serve as a witness to the Ethics Committee or their representative, when requested.

In the case of a Council staff member making the report regarding a Councilmember, the report should be made to the Director (Administrator) (unless the action concerns the Director (Administrator)- in which case the Vice President shall serve instead of the Director (Administrator)) who will then report it to the President. Upon such a report, the Director (Administrator)(or Vice President per above) will assist the President in following one of the two (2) protocols for addressing the violation or alleged violation:

D1.a In implementing the provisions of this section, the Council Officers or Ethics Committee or designated representative, will be authorized to conduct all inquiries and investigations as necessary to fulfill their obligation.

D1.b In the event any Council Member with a role in this policy is the subject of the inquiry, the role of that official shall be assumed by the next ranking official in the chain. For example, if the President is the subject of the inquiry, the Ethics Committee shall be comprised of the Vice President (who will serve as Chair) and the two (2) most recent former Presidents.

If there are no recent former Presidents available to fill the appropriate seat(s) on the committee, the President or Chair will select and invite a member of the Council or any neutral Elder of the Village to serve. In no case will any member of the Ethics committee be allowed to sit in judgment of an immediate relative or friend.

D.1.b.1 If the Council President and Director (Administrator) both agree that the violation or alleged violation is minor in nature (Sec C.4), the President and the Director (Administrator) may contact the individual Employee or Councilmember and advise that person of the concern and seek to resolve the matter and report the violation and penalties etc to the Council (Protocol 1).

D.1.b.2 If the President and Director (Administrator) do not agree that the violation or alleged violation is minor (see Section C.4), then the President shall convene a special ad hoc committee of the President (who will serve as Chair), Vice President and most recent President (the "Ethics Committee") who will meet with the Director (Administrator) and appropriate staff and/or witnesses to determine how the matter may proceed, be resolved or be reported to the appropriate authorities (Protocol 2).

D 1.b.3 If the President and the Director (Administrator) find that the violation is minor, not illegal, or of no lasting harm, then the Council Member or employee may be censured, if a bribe, redress made and collected, in the amount of the original amount of the bribe or inappropriate gratuity plus a 100% penalty to be paid to the council as a cost of the investigative action, and a statement of same placed in the Employee's personnel file. If no money is involved, other than inappropriate behavior, the President shall follow the personnel policy in dealing with said violation. If potentially criminal in nature, then the Alaska State Troopers or Village Police

Officer shall be immediately notified and the suspect individual barred from the workplace until it can be determined that is no threat, physical or otherwise, to any employees, the public, or assets of the Tribe.

D2.a At that time an employee may be retained with no second chance remaining in their employment with the Council, or terminated for cause, per the decision of the President and the Director (Administrator). Other actions such as demotion or restriction of job duties may also be imposed by the President and Director (Administrator). Redress of the bribe or gratuity shall be collectable from the employee's net pay as determined by the President or Director (Administrator).

D2.b If the minor violation involves a Council Member, then redress and the penalty, is required to be paid immediately along with a public apology to the individual(s) harmed and fellow council members at a quorum of the Council in open session. Any repeat violation in his or her term of office, or within 5 calendar years, shall be grounds for removal upon the vote of the Council. Failure to cooperate with the investigation or apologize shall be grounds for removal from the board upon a vote of the Council.

Officer shall be immediately notified and the suspect individual barred from the workplace until it can be determined that is no threat, physical or otherwise, to any employees, the public, or assets of the Tribe.

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D2.b If the minor violation involves a Council Member, then redress and the penalty, is required to be paid immediately along with a public apology to the individual(s) harmed and fellow council members at a quorum of the Council in open session. Any repeat violation in his or her term of office, or within 5 calendar years, shall be grounds for removal upon the vote of the Council. Failure to cooperate with the investigation or apologize shall be grounds for removal from the board upon a vote of the Council.

E. CERTIFICATION

This is to certify that the Napaimute Traditional Council has adopted the foregoing code of Conduct on October 24, 2015, by a vote of 5 in Favor, 0 Opposed, — Abstaining, and — Absent.

Attested by: Devron Hellingas date 10/24/2015

[REDACTED]
Tribal Council President, and

[REDACTED] date 10/21/2015

MARLIE Sherer
Tribal Council Vice President

I hereby acknowledge that I have reviewed and received a copy of the preceding code of Conduct and agree to the terms and requirements as expressed and required herein, and will comply with any and all such terms as a Napaimute Traditional Council member or employee.

Date _____

Agreed to _____

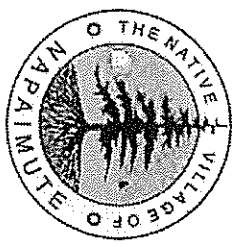
(for Employees and Council member acknowledgements only)

Napaimité Community Plan

Prepared for:
Native Village of Napaimité
Prepared By:
ASCG Incorporated
June 2004



Napaimate Community Plan



Prepared for: Native Village of Napaimate

Prepared by: ASCG Incorporated

June 2004

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Executive Summary

Napaimute Vision

Restore Napaimute to a vital, sustainable community that provides a home for our people and preserves our cultural heritage.

Our vision, as the people of the Native Village of Napaimute, is to restore Napaimute to a vital, sustainable community that provides access, facilities and services for year round residents while preserving traditional values that make us who we are. The purpose of the plan is to lay the groundwork and provide information to assist us as we work together to reestablish our community. The plan includes information about Napaimute and its history, an inventory of existing facilities, our goals and objectives and our development priorities.

These four goals summarize our strategy to achieve our vision for the community:

1. To obtain a land base to develop a community.
2. To develop a planned, sustainable community with the basic infrastructure needed.
3. To establish a variety of economic development projects to sustain Napaimute's economy.
4. To preserve our laproot, the traditional values that make us who we are.

The immediate community priorities we have established to reach our goals include:

- **Land base** – Formalize the land base in order to proceed with reestablishing the community.
- **Airport** – Develop safe, year-round air access.
- **Homesite development** – Designate land and form a plan for homesite development.
- **Economic development** – Explore and develop year-round opportunities for income.
- **Communication** – Acquire reliable modern communication technology
- **Sanitation** – Establish and maintain safe, healthful water, wastewater and solid waste management.
- **Power** – Provide constant, reliable power. Alternative energy should be incorporated whenever feasible.
- **Multipurpose facility** – Construct a multipurpose building to accommodate essential services during initial community development.

Long-range projects include development of a school, post office, improved landfill, and road system.

In this Community Plan, we have presented our history, which is our foundation; our present resources, which are the tools we will use to build; and our vision for Napaimute, which is our future.

Introduction

Napaimute is located in Western Alaska on the north bank of the Kuskokwim River, 28 miles east of Aniak at the foot of the Kuskokwim Mountains (see Figure 1). Once a community of over a hundred, by the 1960s its year-round residents had moved on primarily due to lack of economic opportunities. Although residing elsewhere, 39 original members enrolled as Napaimute Tribal members. Today, with the addition of their descendants, the Tribe has more than doubled and there is an active effort to revitalize Napaimute and provide a place for Tribal members to return.

Revitalization

New developments in technology, upcoming large-scale economic development in the region, and the increased potential for tourism in the Middle Kuskokwim combine to make the reestablishment of Napaimute as a permanent Alaskan community a real possibility. The revitalization began in earnest in 1969. Bit by bit, members cleaned up the site, removing old trash, tearing down buildings too dilapidated to save, cutting decades worth of grass and willows, leveling the ground, and filling holes. Many tons of supplies and equipment have been hauled to Napaimute by barge, boat, snow machine, plane, and even by truck. On this reclaimed land, several families (tribal and non-tribal) have built permanent homes, planted gardens, and set up smoke houses and steambaths. The U.S. Census 2000 listed 16 permanent, seasonally occupied residences for Napaimute. With the revitalization of the community, its members have become more interested in its future. Today, the Tribe has more than doubled and the dreams of the original members are becoming a reality. More and more people have expressed the desire to call Napaimute home, to improve their quality of life and to live a more traditional lifestyle.

In 2003, the Native Village of Napaimute received funding from the Administration of Native Americans to

develop a community master plan that could lay the groundwork for that revitalization effort. To assist them, the Tribe hired ASOG Incorporated to work together to write a planning document that would outline the history and background of the community, identify the existing conditions, develop goals and objectives and prioritize projects. The Tribe also wanted the plan to provide additional development details or a "how to" guide for reestablishing Napaimute.

The Yup'ik word "Napaimute" means People of the Forest



The time to plan is now. That's the intended purpose of this document to pull it all together: past, present, and future.



Napaimute faces

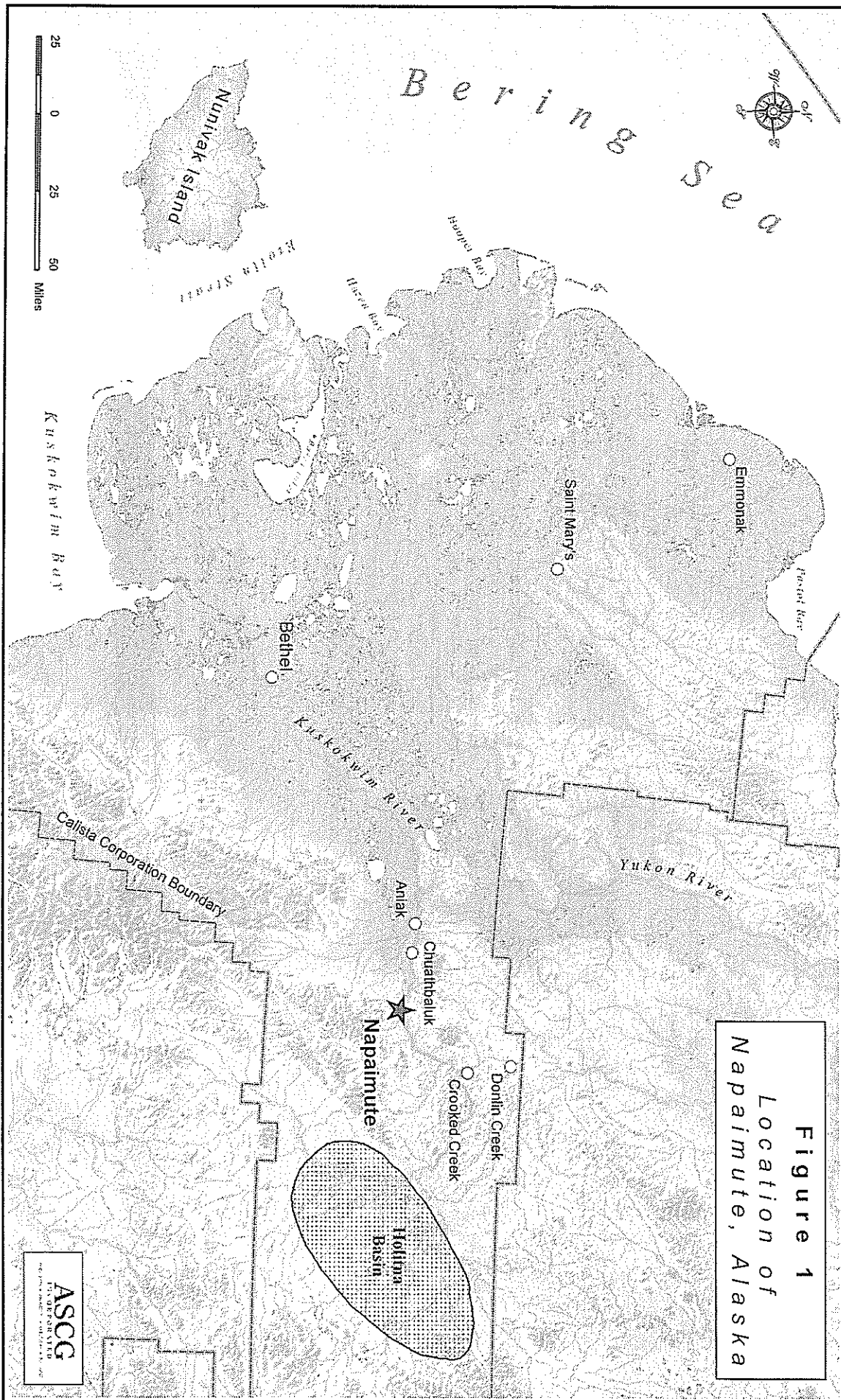
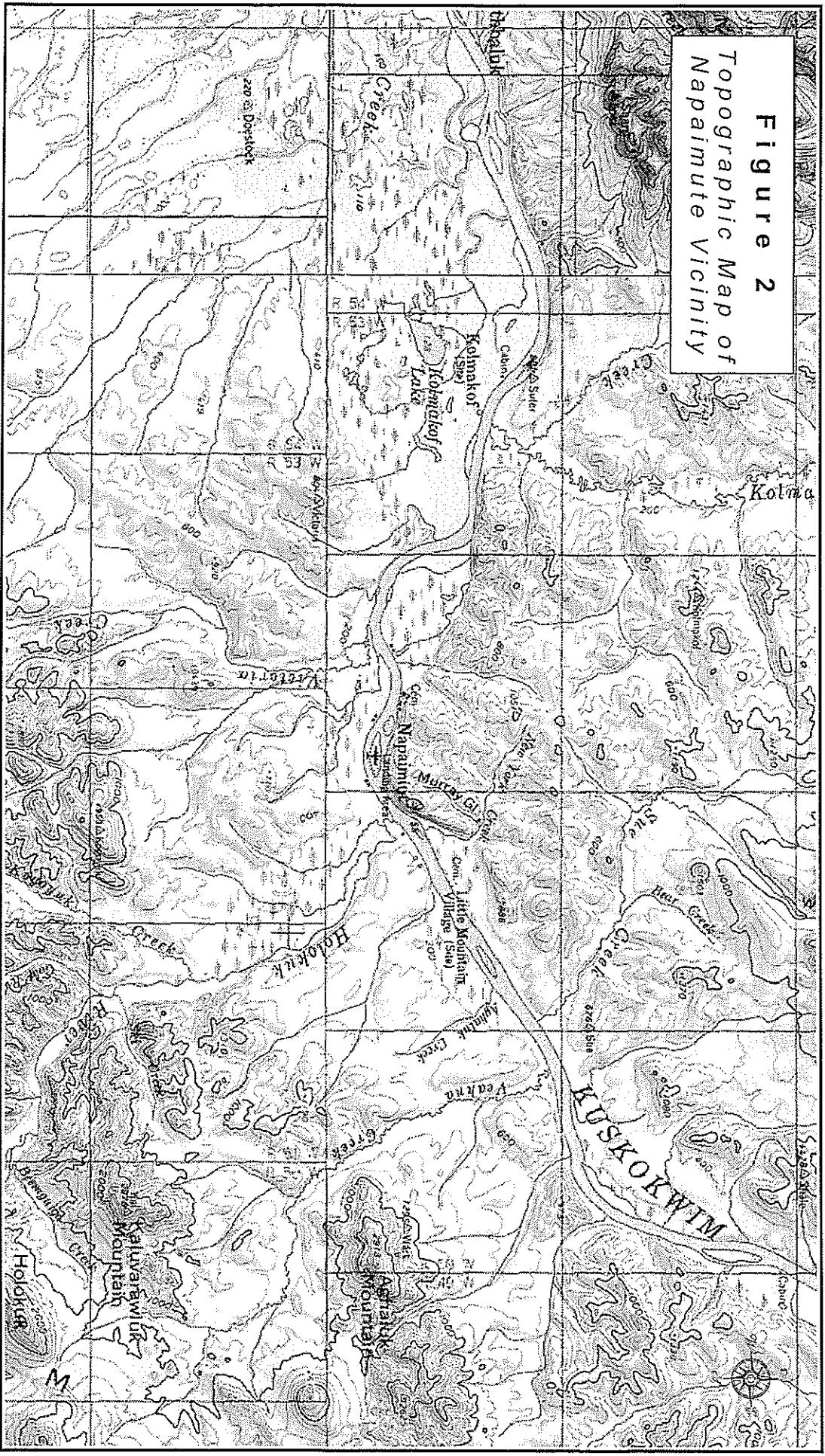
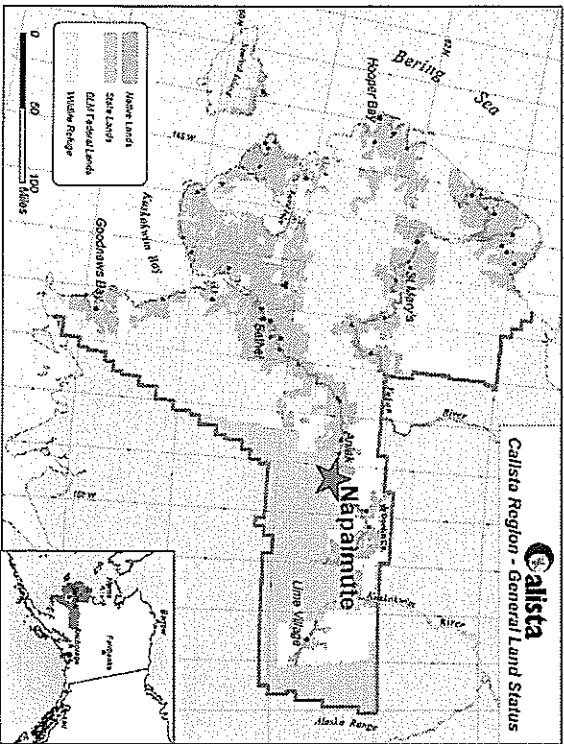


Figure 2
Topographic Map of
Napaimute Vicinity





Land

Under the 1971 Alaska Native Claims Settlement Act (ANCSA), a village corporation was formed for Napainute Tribal members called Napainute Limited with ownership to the surface estate of 69,120 acres in and around the traditional village. The subsurface estate in the region belongs to Calista. Founded in 1972, Calista Corporation is the second largest of the 13 regional corporations formed under ANCSA in 1971. It is a business corporation formed under state and federal laws, including the settlement act and its amendments.

Community	Distance from Napainute (Air miles)
Aniak	28
Anchorage	290
Bethel	115
Crooked Creek	30
Donlin Creek Mine	40

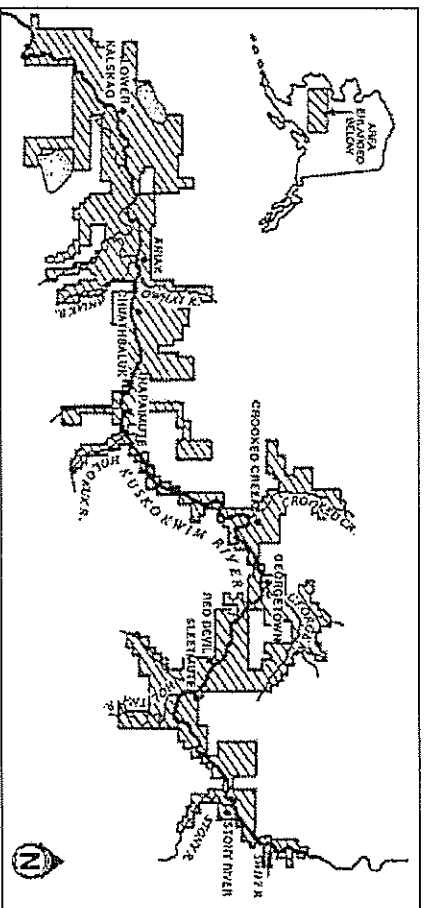


Figure 3 The Kuskokwim Corporation land holdings

In 1977, Napainute Limited merged its assets with nine other middle Kuskokwim villages (Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Napainute, Crooked Creek, Georgetown, Red Devil, Steelmute, and Stony River) to form the Kuskokwim Corporation (TKC). This was allowed by amendments to the Alaska Native Claims Settlement Act. TKC lands are illustrated in Figure 3. Under section 14(c)(3) of ANCSA, TKC was then obligated to reconvey no less than 1,280 acres to the city governments of each of its 10 member villages to be used for community purposes, including community expansion. A lesser amount of acreage could be reconveyed if all parties involved agreed in writing. In villages where no city government exists, the lands reconveyed under 14(c)(3) go to the State of Alaska to be held in trust for the future city.

In the 25 years since TKC was formed, the original Napainmute members and their descendants who remained in the region continued to work toward resettling the village.

The Native Village of Napainmute received federal recognition as one of Alaska's 229 Native Tribes in 1994 after key members, at considerable personal expense, gathered historical evidence to prove that Napainmute was once a thriving community with a distinct group of tribal people. It was this federal status that qualified the Native Village of Napainmute to receive funding through the Bureau of Indian Affairs (BIA) Tribal Priority Allocation Program. This small grant allowed the Napainmute Traditional Council to conduct regular tribal operations and begin pursuit of their top priority - obtaining a land base to be used to reestablish the Village.

For three years, the Council worked to identify land suitable for building a community and doing preliminary planning for its use. The Napainmute Traditional Council applied for and received "Appropriate Village Entity" (AVE) status from the State of Alaska and entered into 14(c)(3) negotiations with TKC for the

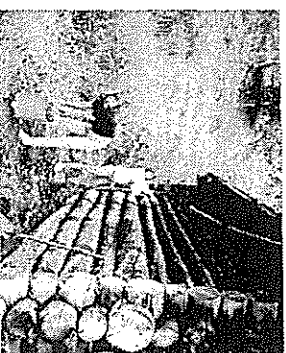
reconveyance of 650 acres to the Native Village of Napainmute. Because Napainmute has no municipal government (like many rural Alaskan villages) the land selected would go to the State to be held in trust.

This fact, with its potential for loss of local control, was of great concern to the Traditional Council and much time was invested researching alternatives to the ANCSA 14(c)(3) reconveyance process. (See Appendix A for a copy of ANCSA land conveyance regulations.)

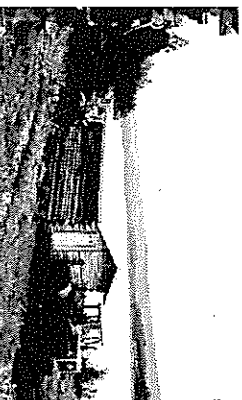
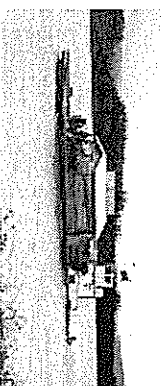
The goal of the Traditional Council was and remains to obtain land and to plan and develop a community for its members who want to return home and seeking to establish a residence in Napainmute.

In April 2003, a proposal requesting a direct transfer in lieu of a 14(c)(3) settlement was submitted to TKC. TKC has recognized that the tracts selected will be for the community of Napainmute in one form or another but they have yet to make a determination regarding the proposal. This recognition was made through an interim lease on all 650 acres in October 2003. The lease from TKC gives site control to the Native Village of Napainmute and allows the Traditional Council to move forward with planning and development. The lease sets a timeframe of 24 months in which Napainmute land selections will be reconveyed to the tribe through a direct transfer, 14(c)(3), or a combination of both.

The time to plan is now. That's the intended purpose of this document-- to pull it all together: past, present, and future. There is a need to reach back and demonstrate the strength of Napainmute's past, to organize our course for the present, and to break a trail for the future planning of a beautiful place called - NAPAIMUTE.

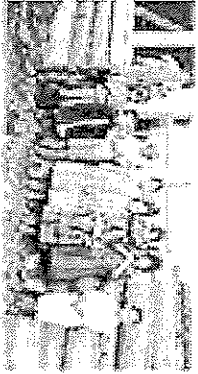


Building restoration

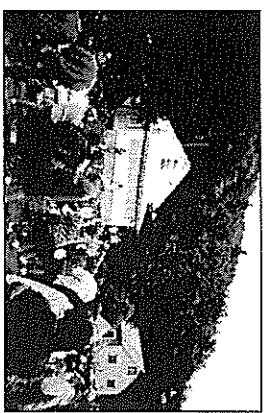
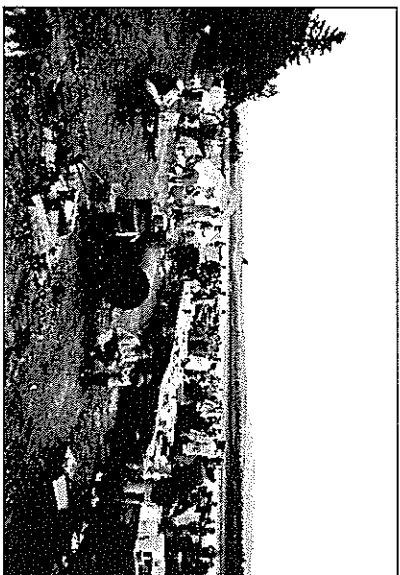


Cleaning up the Village and Tribal Building installation

Community Data



*Agnes Charles –
First Traditional Chief,
Native Village of Napaimute
November 1, 1910 – December
29, 2002*



*Many return to Napaimute for funerals
or other major events*

Although several hundred or more people can trace their roots to Napaimute, it was just a handful who continued to maintain ties to the village once its western-style economy ceased. These few identified themselves so strongly with their ancestral home that they worked hard to receive federal recognition as one of the Alaska's Native Tribes.

There were 39 original members who enrolled in Napaimute. Today, with the addition of their descendants, the Tribe has more than doubled.

Napaimute History

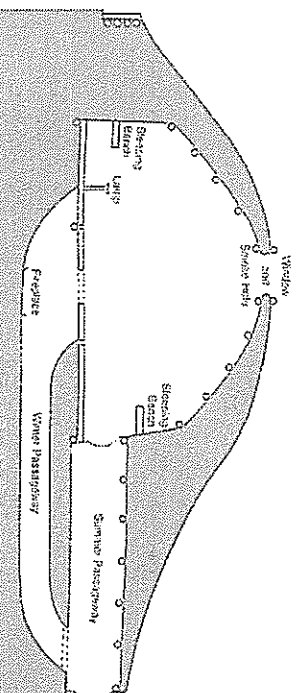
The Yup'iks that once lived in the vicinity of present day Napaimute were known as the Kiatagmiut, or Upriver People. This culturally rich and adaptable Yup'ik sub group lived in a string of stable settlements from Bethel to just upriver of Napaimute, a distance of about 170 miles. Because of their spread out location, they were equally at home among spruce forested riverbanks and tundra country and were arguably one of the most adaptable Aboriginal groups in the area. East of the Kiatagmiut, lived Indian groups represented by the Georgetown Ingalik subgroup who inhabited the upper reaches of the river and the adjacent inland area.

The ancestors of the Upriver People had lived for thousands of years along the Bering Sea coast of western Alaska and in comparatively recent times had pushed inland. The Kiatagmiut numbered from 3,000 to 7,000 at the time of Western contact and maintained a salmon-based economy with an abundant, easily obtainable supply of food and raw materials. Their villages were small, with an average of around 120 inhabitants and while they migrated seasonally, generally they had strong attachments to their home villages. (Oswalt, *Basinful No Longer*, p. 17)

A typical village included about seven houses occupied by closely related females and their young male offspring. The older boys and the men usually lived in the men's house (gasig), the largest structure in a village. The gasig also served as a bathhouse, workshop and setting for religious ceremonies or social activities. The houses and gasig were well-built, square or rectangular log-framed and sod-covered structures. The gasig often remained occupied for generations. (Oswalt, *Komakovsky Redoubt*, p. 4-6)

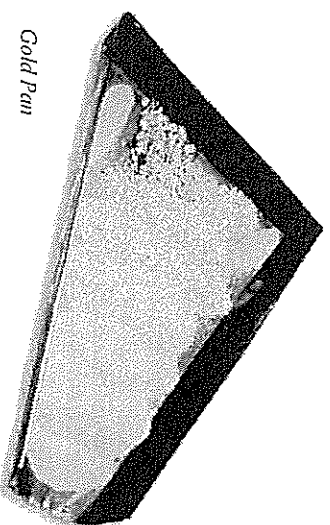
In 1830, several Russian explorers, using Yup'ik guides, traveled up the Nushagak River, along the Holitna River to the Kuskokwim. The purpose of their expedition was to examine the viability of expanding the Russian American Company's fur trading business into this area. They sent back favorable reports and in 1832, the Russians returned to set up a "winter hut" near present day Steelmute. This site, known as Kolmakovs Odinochka, proved to generate minimal trade primarily because the population was small and scattered. The next year the Russians built a second trading station at the village of Kwiginupainukamiut, located downriver from Kolmakovs Odinochka, at the junction of the Kuskokwim and the Kolmakov (Kwik) rivers, about nine miles west of present day Napaimute. The Russians brought western trade goods that they exchanged for fur such as beaver, otter, lynx and fox. In addition to introducing western trade goods to the local populations, the Russians brought deadly diseases. In 1838, despite Russian attempts to vaccinate the local populations, residents in the central Kuskokwim area were hit hard by a small pox epidemic. This disease devastated the local inhabitants, killing an estimated 60% of the Yup'iks living in the upriver communities.

In 1841, the Russians built a year-round round trading post on a spruce-covered plot across the river and slightly downstream from the station at Kwiginupainukamiut. This trading post, known as Kolmakovsky Redoubt was named after Fedor Kolmakov a Russian American Company employee who helped to develop the regional trade. This was the first permanent Russian settlement on the Kuskokwim and included a store, warehouse, Russian Orthodox Church, Creole (mixed Russian and Eskimo) and separate Eskimo Barracks, and stockade.



Drawing of a gasig, after E. W. Nelson (1899).

In 1844, the first record of Napainmute occurred when Russian ethnographer, Lavrentiy A. Zagoskin boated up river from Kolmakovsky Redoubt to visit the remnants of a Yup'ik settlement. Located downstream from the creek at the lower end of the present day Napainmute, the village was referred to as Kytygahutuk or "Forest." Other accounts in the late 1880s describe the presence of a few residents in this location but evidence suggests it once contained a larger population that was likely reduced by the 1839 small pox epidemic. In 1900, an influenza epidemic further devastated the populations of Kuskokwim River villages and other villages in Alaska. An estimated 50% of the population died as a result.



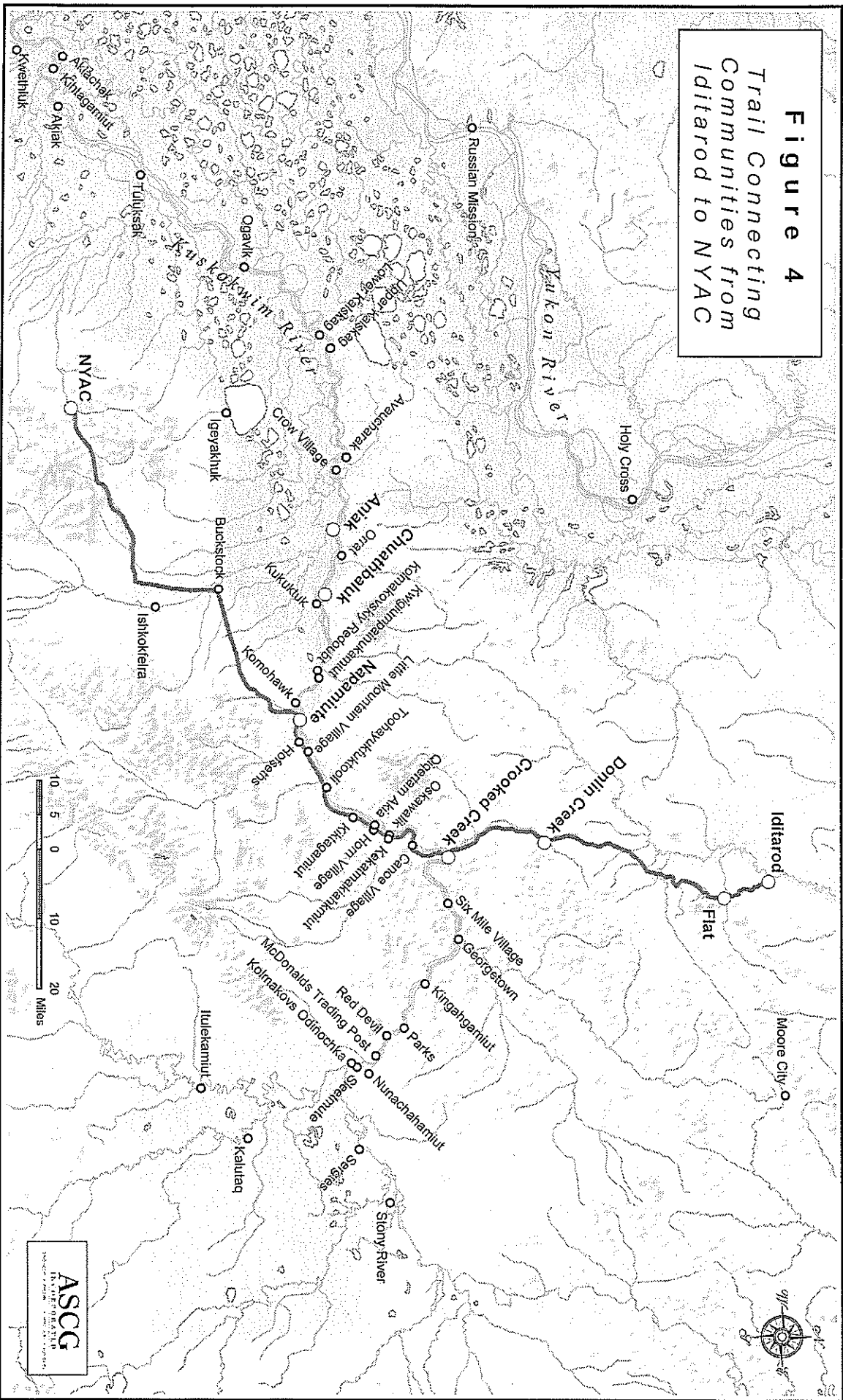
Gold Pan

The next major change that came to the residents of the Napainmute area arrived with the influx of gold miners and traders. Although a few placer miners passed through the Kuskokwim area as early as 1889 (Maddren, 1915, p. 299), it wasn't until 1900, that they began to arrive in earnest. The gold prospectors arrived mainly from Nome, because of a vague rumor of a possible gold find on the "Yellow River", assumed to be a tributary of the Kuskokwim River. By September of that year, several miners reached Bethel and began to move inland. By winter, a small dog-sled dash to find the Yellow River was in progress. This rush became known as the "Yellow River" or "Pete McDonald" Stampede (Maddren, 1915, p. 299). Their first efforts to find the "Yellow River" centered on a creek near the modern settlement of Aniak and later several miners went up the Stony River. Although the "Yellow River" was never found, miners continued to look for gold throughout the Kuskokwim area. In 1906, prospectors searching for gold along the Inoko River drainage of the Yukon finally recovered enough gold to stake a discovery claim on nearby Ganes Creek. Soon, more than eight hundred people arrived from Fairbanks and several hundred more arrived from Nome into the Upper Kuskokwim and Iditarod area. Latecomers located claims on nearly every creek in the mountains of the Upper Inoko. A trail was established from Iditarod and Flat to Crooked Creek and south southwest passing through Napainmute and overland to NYAC. See Figure 4 on the following page.

As the gold fields of the Iditarod began to play out, miners spread throughout the region looking for new prospects. The Kilbuck Mountains to the southwest of Napainmute began to develop significant gold mining activity. In 1906, George Hoffman established a trading post located at the present day Napainmute. Napainmute became an important supply and trade center for the central Kuskokwim River area. It was the midpoint between the gold fields of the Iditarod and the Kilbuck Mountains.

In 1910, placer miners discovered gold at New York Creek nine three miles northeast of Napainmute. There, miners concentrated their efforts in Murray Gulch, a short right-side tributary to New York Creek along the lower three-fourths of a mile and near the mouth of this gulch. Three 20-acre placer claims were established; one at the mouth of the stream and two above it. Most of the prospecting on Murray Gulch was done by sinking shafts into bedrock. A small prospecting boiler was also used to thaw the frozen ground with steam and bench trenches were dug at right angles to the direction of the valley for ground-slicing.

Figure 4
 Trail Connecting
 Communities from
 Iditarod to NYAC



While the gold mining diminished in the early 1900s, George Hoffman and his family continued to live in Napaimute for many years. In 1920 he helped to build the first territorial school along the Kuskokwim. The school had 30 pupils, 12 of which were the children of George Hoffman and his wife.

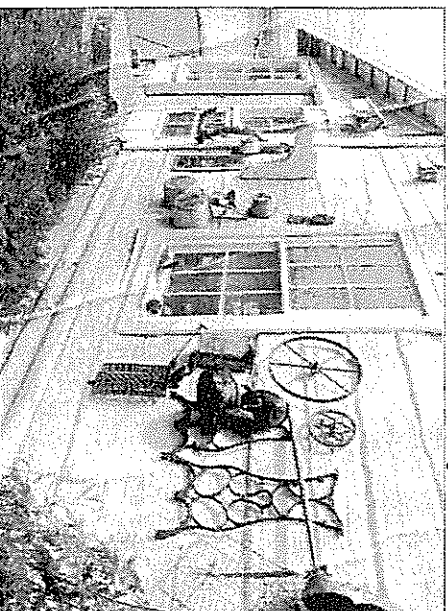
The U.S. Census indicated that the 1930 population of Napaimute was 111. In 1932, George Hoffman died. His trading post was sold several times but with the decline of the mining, fur, and also reindeer industry that had been introduced by Sheldon Jackson, the store eventually closed and the village population began to dwindle. Many residents migrated downriver to either Aniak or Bethel where government agencies were beginning to create more stable job opportunities. By 1950 the U.S. Census reported the population was 24 and in 1969, Mrs. Alta Brink, a former Napaimute school teacher, became the last permanent resident to move out of the village.

Although no longer living in Napaimute, the remaining descendants continued to identify strongly with their ancestral home. So much so,

that in the 1970s, they fought for and received federal recognition as one of the Alaska's Native Tribes. This federal status has enabled the Native Village of Napaimute to survive, awaiting the day when its members would return home. There were 39 original members who enrolled in Napaimute. Today, with the addition of their descendants the Tribe has more than doubled and with the hard work of Tribal members, the dreams of reestablishing Napaimute once again as a thriving community is becoming a reality.



In front of the Napaimute School



The house of George Hoffman was built in Napaimute in 1906, with hand-hewn logs and nails by Russian craftsmen who came to the region to build Russian Orthodox Churches. The house was purchased by granddaughter Dolores Hoffman Rader and with her husband Joe, the structure was taken apart piece by piece and reconstructed to repair the flood damaged foundation. The home is slated to be the oldest habitable house on the Kuskokwim River.

Historic Preservation

Napaimute is rich in history. As of yet, no structures or sites in Napaimute have been registered on the National Register of Historic Places, but the Traditional Council intends to begin to register Napaimute's historical assets in the near future. It is unlikely that developments in Napaimute will impact historical properties in the new community location, but may in the present Napaimute site. Further coordination with the State Historical Preservation Office will be necessary to confirm this once a specific project location is identified.

George Hoffman House. The George Hoffman House, built in Napaimute in 1906, is said to be the oldest "habitable" house on the Kuskokwim River. (See photo at right) It was constructed of hand-hewn logs and nails by a Russian craftsman who built Russian Orthodox Churches in the region during that time. It was later purchased by George Hoffman's granddaughter and reconstructed to repair flood damage to the foundation.



Kolmakovsky Redoubt, 1884

The Tribe plans to register Napaimute's two cemeteries on the NHR and then apply for funding to preserve them. Both cemeteries are in the vicinity of the original village site.

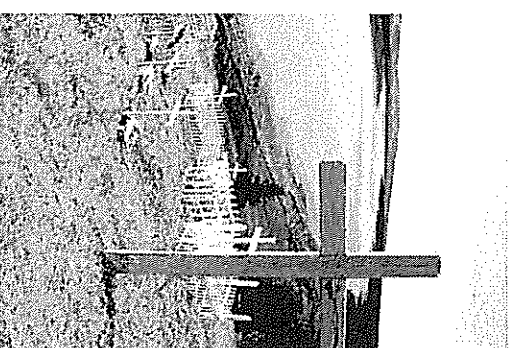
As a first step towards completing this goal, the Napaimute Traditional Council applied for a Historic Preservation Fund Grant from the National Park Service to conduct a Survey and Inventory of Historic Sites on Tribal Lands.

The following pages present a timeline of significant events that have occurred during the history of Napaimute.

Kolmakovsky Redoubt. Located nine miles west of Napaimute across the mouth of Kolmakov River on the south side of the Kuskokwim River is the historic Russian trading post built in 1841. The trading post is listed on the National Register of Historic Places (NHR) and was occupied by the Russian American Company until 1866 and then by the American Commercial Company until about 1917.

There are two historic sites not listed on the historic register but identified in the *Alaska Heritage Resources Survey*:

- the early historic village of the 1800s, which was located downstream from the existing community, and
- a camping area on the south bank of the Kuskokwim River, opposite modern-day Napaimute.



Napaimute graveyard

1910

1920

1930

1940

1950

1960

1970

1980

1990

- In 1838, a smallpox epidemic reached the Kuskokwim region, reducing the population by an estimated 60%.
- In 1841, Kolmakovsky Redoubt, a Russian fur-trading outpost, was constructed 9 miles from Napaimute.
- In 1844, Russian ethnographer, Zagoskin Lavrenty penned the first known written reference to Napaimute.
- In 1866, Russians abandoned Kolmakovsky Redoubt.
- In 1900, an influenza epidemic reduced the population by approximately 50%. Mostly the young survive.
- In 1906, George W. Hoffman established trading post at Napaimute.

• Around 1920, George W. Hoffman built a territorial school – the first on the Kuskokwim River.

• U.S. Census Data indicates that the 1930 population was 111.

• In 1932, George W. Hoffman passed away. His trading post changed hands several times in the ensuing years.

• Prices for furs and gold dropped due to World War II and most year-round residents moved from Napaimute for economic reasons.

• U.S. Census Data indicates that the 1950 population was 24.



Hoffman family



Agnes Charles, first Traditional Chief of Napaimute

Children of Napaimute



- In 1969, Mrs. Alta Brink, former Napaimute School teacher and the last permanent resident of Napaimute, moved away. Napaimute was unoccupied for the first time since 1904.
- In 1969, Joe and Dee Matter purchased and restored the original George Hoffman house, bringing it back into the family. Dee was George Hoffman's granddaughter.
- 1971 passage of Alaska Native Claims Settlement Act established a Village Corporation for Napaimute, Napaimute Limited, with ownership of the surface estate of 69,120 acres in and around the village.
- Napaimute joined the Kuskokwim Native Association (KNA).
 - In 1975, Agnes Charles returned to live full time in Napaimute.
 - In 1977, Napaimute joined the Kuskokwim Corporation (TKC).
 - In 1986, the Traditional Council reestablished the Native Village of Napaimute and raised their first funds by holding a bake sale at the Interior Rivers Fair in Aniak.

1990

2000

Present

- In 1991, a 12-acre settlement by TKC of an overlaying native allotment within the original village site opened up additional area for settlement by Napaimute tribal members. Three families built homes in the ensuing years.

- In 1994, Napaimute received recognition as a federally recognized tribe as the result of key members gathering historical evidence at their own expense.

- In 1996, the Native Village of Napaimute withdrew from KNA and began compacting for services with the Association of Village Council Presidents (AVCP).

- Office established in Bethel during the winter months with phone, internet, and fax access.
- Native Village of Napaimute website established.
- Council held annual Tribal gatherings in the spring.
- Council is recognized by many organizations throughout the state.
- Council participated in various bills and action items on topics such as subsistence, migratory birds, and YKHC health problems.
- Council applied for and was awarded grants.
- In 2000, emergency medical supplies and construction tools were established in Napaimute in anticipation of the development of the village.

- In 2001, a full time tribal administrator was hired. The administrator worked toward establishing basic infrastructure for tribal operations in Napaimute.
- In 2001, a sawmill was purchased for the village in support of new development.

- In 2002, a bulldozer with a backhoe was purchased to support the development of the village and maintain an airstrip on the ice in winter for emergencies.
- In 2002, Tribal operations began in Napaimute May through October. Internet and satellite phone communications were established.
- In 2002, a Tribal Fuel/Store Business was established.
- On December 29, 2002, first traditional chief of Napaimute, Agnes Charles, passed away. Inability to get to Napaimute due to dangerous river conditions, further demonstrated the need for an airfield.
- October 22, 2003, the Kuskokwim Corporation granted an interim lease of 650 acres to the Native Village of Napaimute to allow for community planning and development
- March 2004, first phone/fax installed in Napaimute
- Tribal operations continue in Napaimute with business expansion, the hiring of local employees, a logging project, site preparations for the construction of a multipurpose building and the restoration of the Russian Orthodox graveyard.



Old Man Archie, Mrs. Archie, Sophie McDonald, Tony McDonald and brother Jack McDonald, Mrs. Archie's grandson Willie and MaryAnn McDonald



Dudley Clark, Bertha Hoffman, Clarence Clark, and Eli Walker on the trail from Napaimute to Nyak

Government

Napainute, acting through its Traditional Council, is formally recognized by the Alaska Native Claims Settlement Act. It is also listed in the Federal Register, Volume 53, Number 250, dated December 29, 1988, as a Native entity within the State of Alaska, recognized and eligible to receive services from the U.S. Bureau of Indian Affairs.

The Traditional Council is made up of five members elected to staggered terms. Council members include a president, vice president, secretary/treasurer, and two members. Council meetings are held monthly either in person or via teleconference. Elections are held at the annual Tribal Gathering. Additionally, the Council employs a Tribal Administrator to oversee the business of the Tribe.



Native Village of Napainute
P.O. Box 1301
Bethel, AK 99559
Phone: 907-543-2887
Fax: 907-543-2892
e-mail: napainute@avcp.org
Napainute Office:
Phone: 907-467-6170 or -6171
e-mail: Napainute@starband.net



Napainute Council Meeting/Planning workshop, March 2003



Meeting on land issues



Council members being sworn in

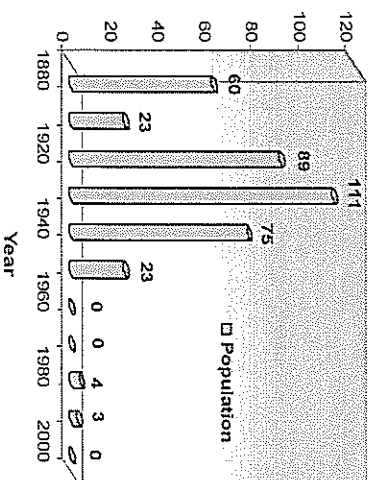
Population and Housing

The population of Napaimute has fluctuated greatly according to the U.S. Census, with the year-round population dropping significantly by the 1950s. The 2000 U.S. Census reported the population of Napaimute as zero, with 16 permanent, seasonal, housing units. In comparison, the Bethel Census Area that Napaimute lies within has shown relatively steady growth over the past decade, approximately 1.6 percent annually. In the period from 1990 to 2000, nearly established communities within the census area showed the following annual percentages of growth: Aniak 0.6 percent; Chuathbaluk 2.1 percent; Crooked Creek 2.6 percent; and Stony River 1.8 percent.

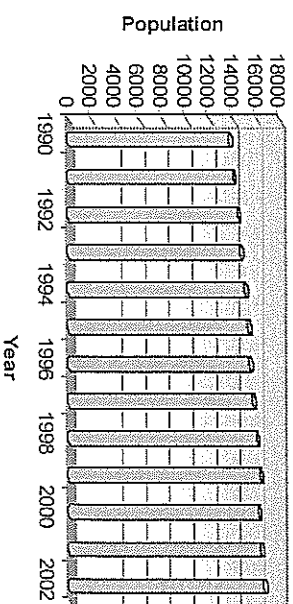
Population increases throughout the region may be indicative of the following trends:

- More people will be traveling in the region; therefore, more services will be required. This is a market that Napaimute can tap into.
- People will be looking for winter recreation, another area of economic development for Napaimute.
- People may be looking for more desirable living locations and may consider moving to Napaimute.

Napaimute Population History



Bethel Census Area Population History



Tri-tribe member with subsistence-caught King Salmon



Environmental Considerations

It is important to consider the environmental impacts when developing new land uses. The following information is intended to assist in the environmental analysis of priority projects.

Wildlife

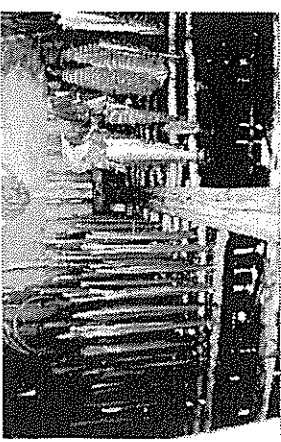
A wide variety of fish and wildlife are present around Nappaimute. The Kuskokwim River supports all five species of salmon in addition to Whitefish and Sheefish. Roughly 2.5 miles east of Nappaimute, the Holokuk River supports Sheefish, Whitefish, Pike, Dolly Varden, Arctic Char, Grayling, Red, King, Silver, Pink and Chum Salmon.¹

Nappaimute is within a low density waterfowl range. Waterfowl such as mallards, teal, and widgeon ducks along with passerine birds are present. Moose and caribou are present throughout the area. High concentrations of winter-range caribou are located northeast and south southwest of Nappaimute while large numbers of winter-range moose are found all along the river Nappaimute.² Numerous fur-bearing mammals are also found in this area, including black bear, brown bear, wolf, red fox, ground squirrel, red squirrel, lynx, marten, beaver, muskrat, wolverine, and otter.

Neither the National Marine Fisheries Service nor U.S. Fish and Wildlife Service indicate threatened or endangered species exist in the area around Nappaimute. There are no National Wildlife Refuges in the Nappaimute region.

Vegetation

The vegetation in the Nappaimute area consists of: white and black spruce, different varieties of birch, willow, cottonwood, poplar and tamaracks. Along the river valleys the vegetation is typical of most Northern Boreal Forest, with alpine tundra in the uplands back from the rivers. Large areas of old burns are common.



Salmon is hung for smoking



Moose contribute to the subsistence diet of Nappaimute residents

¹ Alaska Department of Fish and Game Habitat Division (ADF&G), *An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes*, 1998.

² Department of Community and Economic Development (DCED), *Community Profiles, Yukon Region*, 1976

Wild and Scenic River Status

There are no designated Wild and Scenic Rivers near the proposed village area.

Coastal Zone Management

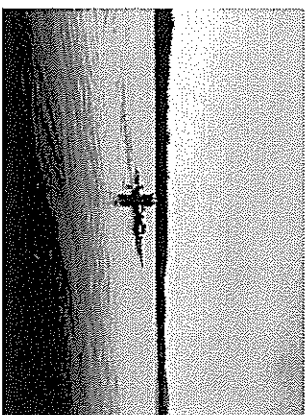
Napainmute is not located within a Coastal Resource Service Area.

Wilderness

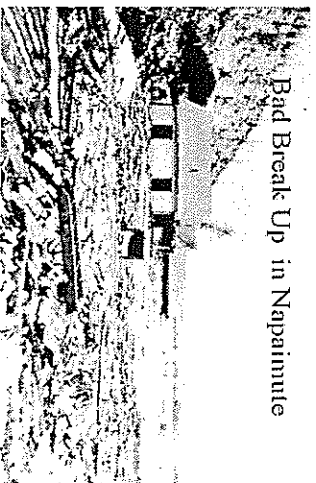
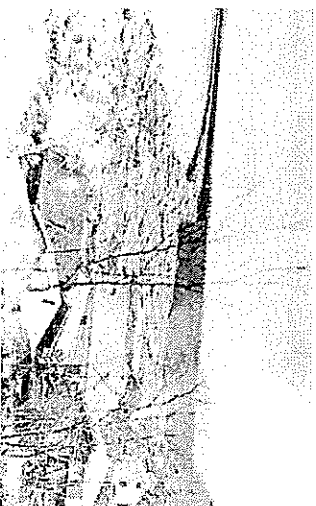
There is no officially-designated wilderness area near Napainmute.

Flood and Wetland Information

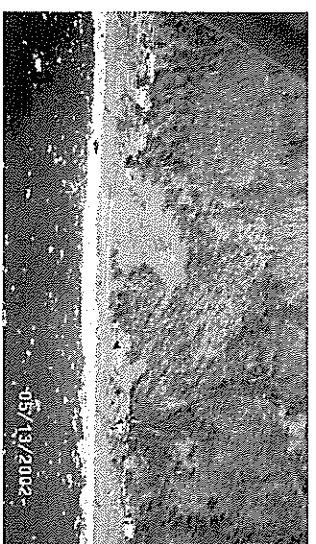
According to the U.S. Army Corps of Engineers (COE), there is flooding potential at the "old town site," but they have no historic records of flooding. A COE official stated that a hydraulic model with at least four cross-sections every thousand feet would be required to develop a 100-year floodplain model. Little or no documented floodplain information exists on most of the smaller communities of Alaska including Napainmute. Flood Plain Management Services has an on going program to identify floodplains and to update flood information on all communities. Their goal is to provide a complete, readily available source of floodplain information for every community in the State. For additional information, contact Flood Plain Management Services at (907) 753-2610.



*Above: Along the Kuskokwim River.
Right: Typical forest near Napainmute*



Bad Break Up in Napainmute



Infrastructure Today

The Land Use Map located on the following page, based on a June 2001 orthophoto, shows the infrastructure in Napaimute that existed at that time. More detail about land use is provided below.

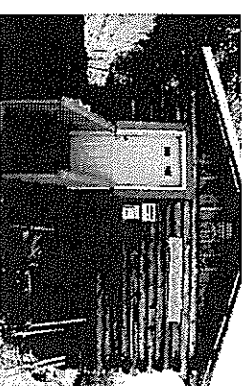
Public Facilities and Services

Napaimute facilities and resources consist of the following:

- Tribal office building with general office services for tribal members including a copier and computer with internet access, phone and fax;
- temporary lodging facilities;
- a new multipurpose building with kitchen, laundry, shower and meeting facilities;
- bulk fuel storage with retail dispensing capabilities;
- emergency medical supplies;
- a wide variety of construction tools and supplies;
- a dozer with a backhoe;
- basic firefighting equipment;
- a sawmill; and
- an equipment garage.



Inside the Tribal Office



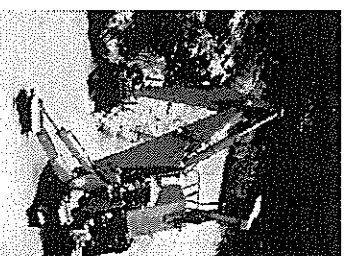
Napaimute Tribal Office



Tools and equipment in storage container

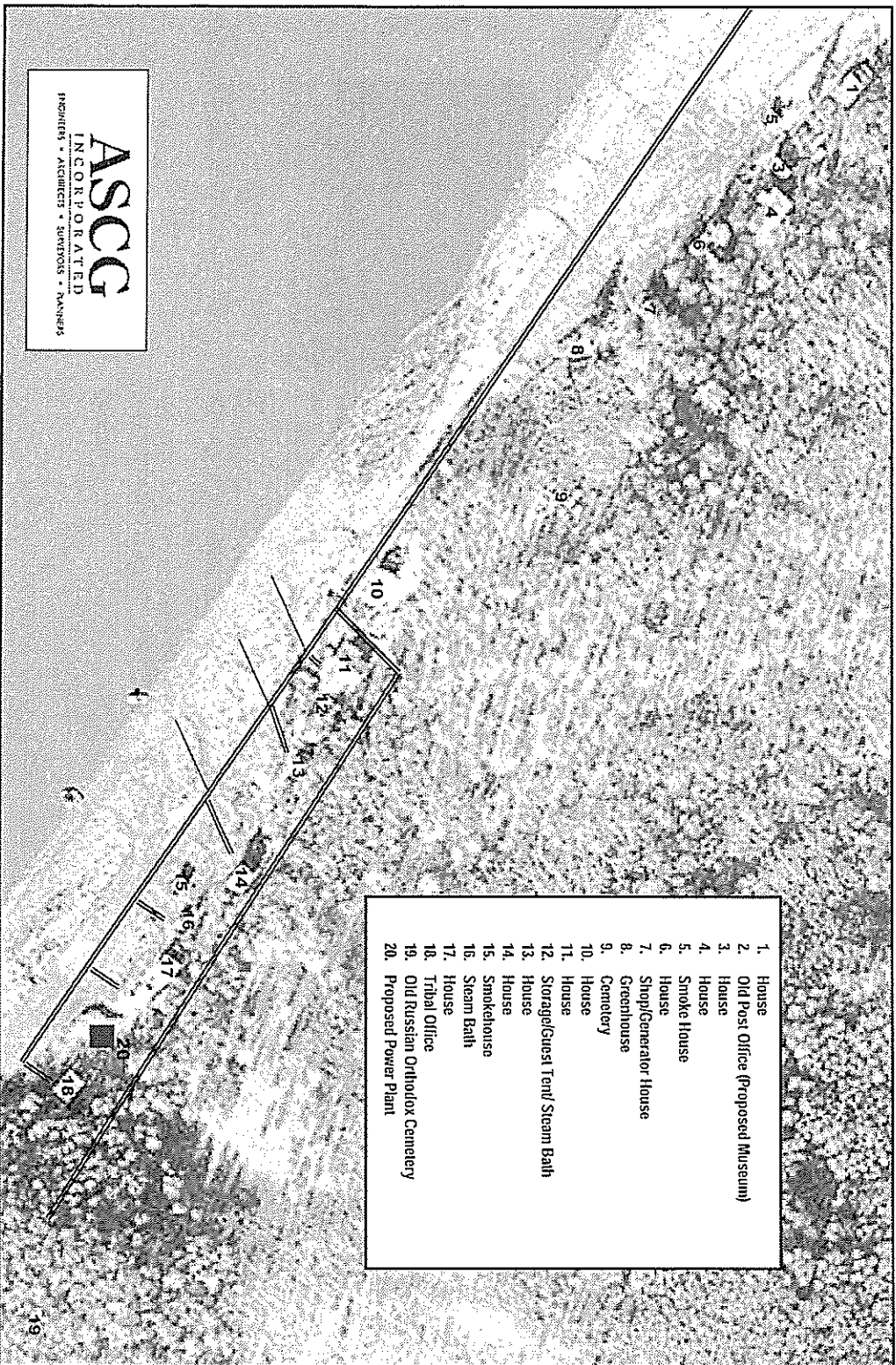


Barge delivering fuel tanks for tribal business

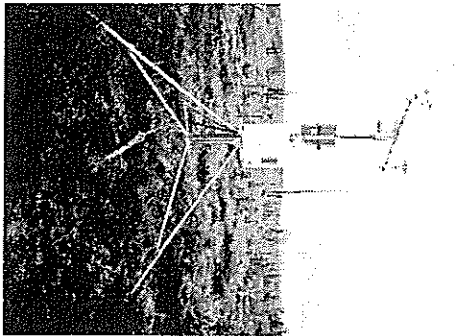


*Above and right:
Heavy equipment and
building materials*





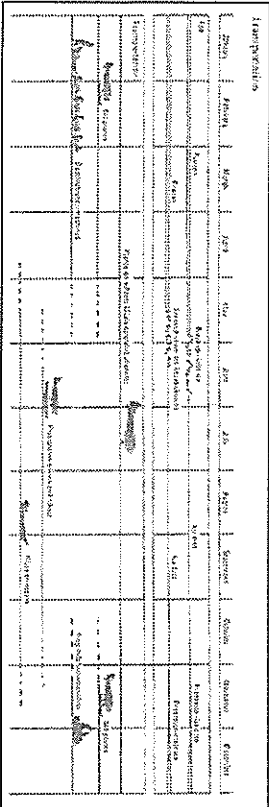
LAND USE MAP
NAPAIMUTE, ALASKA
FIGURE 6



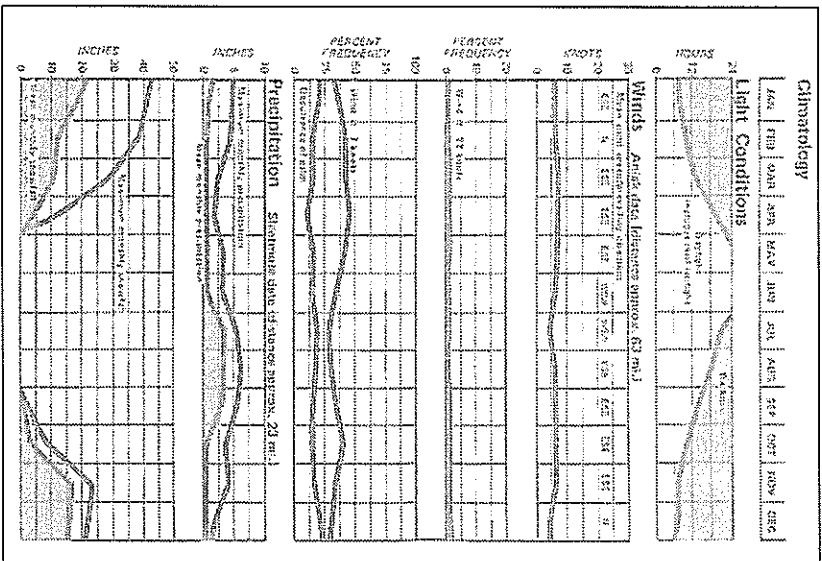
USDA NRCS weather station installed in 2001 at Napainmule

Climate

The weather station at Napainmule collects information about precipitation, air temperature, relative humidity, wind speed and direction, solar radiation, barometric pressure, snow water content, snow depth, soil moisture, and soil temperature. The National Resource Conservation Service's (NRCS) National Soil Survey Center installed the station in 2001. Information from the weather station may be available online at the NRCS's National Water and Climate Center site (<http://www.wcc.nrcs.usda.gov/>) by the end of 2004. Information gathered by the station will assist in accurate planning for infrastructure such as the airport. The more accurate data that is available, the better planning, design and construction can be tailored to meet the specific needs and challenges of Napainmule. The following charts show some of the types of information gathered at this type of weather station.

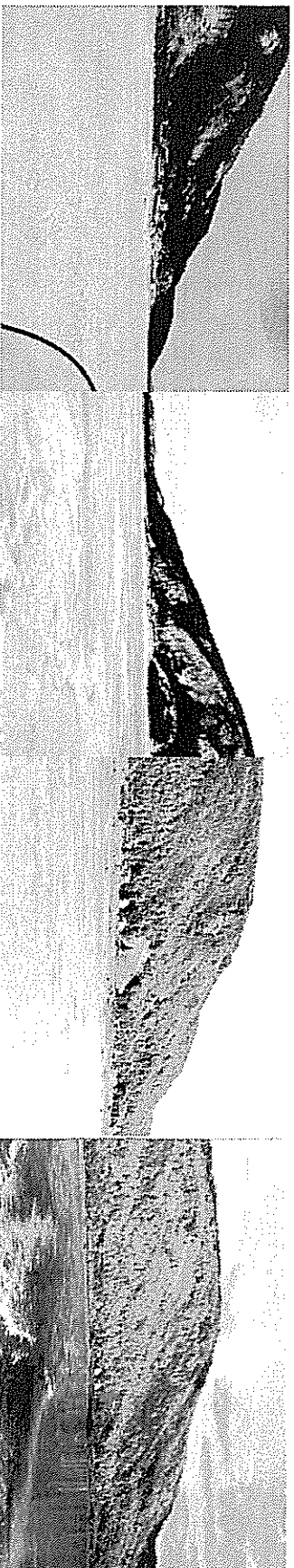


Climate Data	
Average Maximum Temperature	36.8° F
Average Minimum Temperature	19.7° F
Average Total Precipitation	18.84 inches
Average Total Snowfall	56 inches
Average Snow Depth	6 inches



According to the Environmental Atlas of Alaska, the climate of Napaimute is continental and is typified by great diurnal and annual temperature variations, low precipitation, low cloudiness, low humidity, and light surface winds.³

The Western Regional Climate Center shows the following climate data for Aniak, which lies 28 miles west of Napaimute: The average maximum temperature is listed as 36.8 degrees Fahrenheit (°F) with an average minimum temperature of 19.7°F. The average total precipitation is 18.84 inches with an average total snowfall of 56 inches. The average snow depth is six inches. Data from the Western Regional Climate Center is based on a period of record from 9/1/1949 to 3/31/1990.⁴



Pictures of Napaimute: Winter, spring, summer and autumn

³ University of Alaska Fairbanks, *Environmental Atlas*, 1984
⁴ Western Regional Climate Center, *Aniak, Alaska*, 2003

Breckup: Spring 2004



Soils

Napainmute is immediately adjacent to both the hill slopes of the Kuskokwim Mountains and the floodplain of the Kuskokwim River. Hill slopes are steep north of the river, gentle to moderate south. The floodplain widens quickly to the west. According to Mike Mungoven, soils scientist with the National Resource Conservation Service (NRCS), on hill slopes with greater than about 25 percent slope, soils form in channery colluvium. Soils on less sloping positions are formed in deep to very deep loamy windblown deposits. Soils with thick organic surfaces, permafrost and poorly drained conditions can occur on northerly aspects, shaded, or very gently sloping positions. Colder soils without permafrost support mixed Spruce/Birch woodlands while soils with permafrost support low scrub and sedge vegetation. South facing aspects tend to be well drained, lack permafrost, and support Paper Birch forests.

On the nearly level floodplain, soils are formed mostly in very deep stratified alluvium or in organic matter in some wet depressions. Increased distance from the river tends to increase wetness and organic matter accumulation as well as the occurrence of permafrost. On local highs, which are generally narrow, linear and lie roughly parallel to the river, soils can be moderately well to well drained, medium textured, and support White Spruce forest communities. Gravel and sand are very occasionally found underlying the medium textured sediments or more often at the emerging bar positions. In low areas on the floodplain, soils have a water table at or near the surface, at least part of the year. Wet mineral soils support grass and shrub communities while wet organic soils support sedge and moss communities. (Information about soils written by Mike Mungoven, NRCS Soils Scientist, 12/22/03 e-mail)

The map on the following page shows the Existing Resources in the Napainmute Area including gravel, rock, timber, mining, and water.

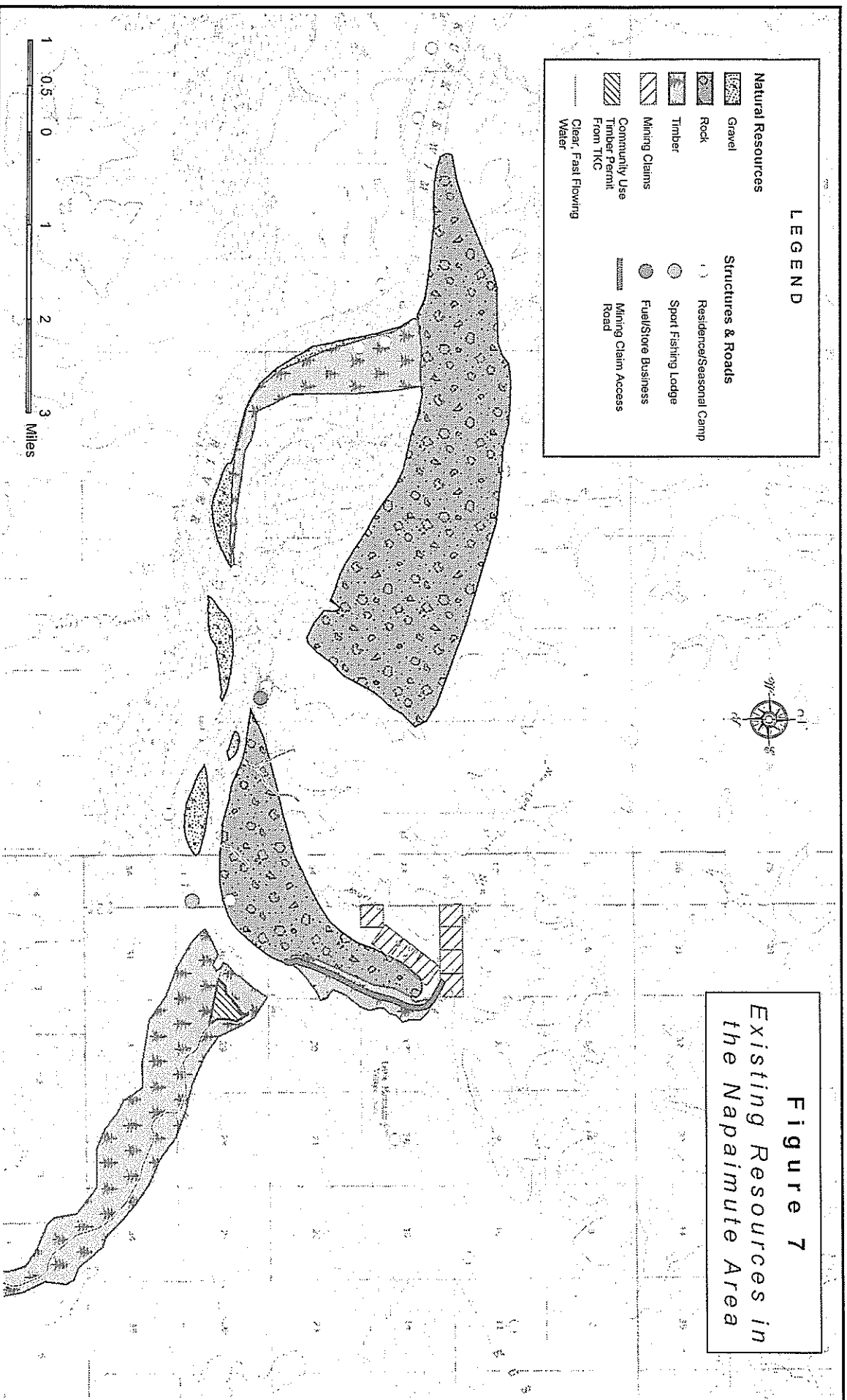


*Clear water
spring used by
area residents
for drinking
water.*

The Central Kuskokwim Region, Alaska: U.S. Geological Survey Professional Paper

"The geology of the central Kuskokwim river region is dominated by a sequence of folded, sedimentary rock comprised of limestone, graywacke, siltstones and shales of Cretaceous and Tertiary age or earlier. These earlier sedimentary deposits are overlain in places by Late Cretaceous to early Tertiary volcanic and plutonic rock and some Quaternary basalt flows. During the late Pliocene or early Pleistocene epochs, the Kuskokwim Mountains were uplifted. The present topography has developed by erosion of this old surface on the uplifted blocks. The upper Cretaceous beds have been faulted at shallow depth into crested folds, which tend to parallel the margins of the sedimentary basin. Bedrock is locally overlain by thick surface deposits of loess and alluvium or colluvium of Pleistocene and Holocene age (Box, et al. 1993, Cady, et al. 1955)."

Source: Cady, W.A., Wallace, R.E., Howe, J.M., and Weber, F.J., 1955



Issues

Reestablishment of an almost extinct community in today's world is a difficult task where living a completely subsistence lifestyle isn't feasible. However, it is one to which the people of Napaimute have demonstrated a deep-rooted commitment. The proof can be seen today, as one rounds the river bend below Napaimute – it actually looks like a village again instead of just the grassy spot along the river with a collection of old decaying buildings that it once was.

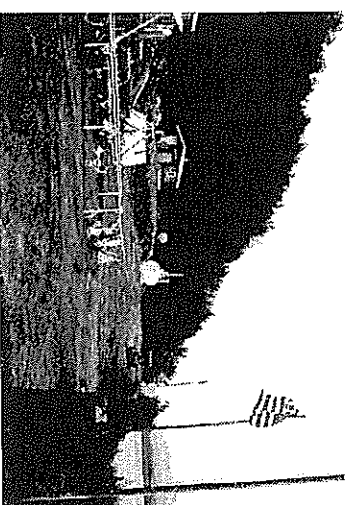
It won't happen overnight. Economic development must be pursued along with building basic infrastructure. Many of Napaimute's original people are scattered. Picking up and coming home may be impossible for some – it may be more possible for the many non-tribal members in the local area who have expressed interest in Napaimute.

Obtaining funding for development may be difficult for a community that is presently only seasonally occupied. Additionally, there is growing pressure from state and federal government to streamline funding. The concept proposed is to channel funding to a regional entity rather than directly to the Villages. This would not pose a major change to Napaimute, which already compacts with the Association of Village Council Presidents, the regional non-profit corporation.

Napaimute's people hold a strong commitment to their ancestral home – one they have kept alive for over half a century and instilled in their descendants. Today, this long held commitment is becoming a reality. It is no longer a question of if Napaimute will become a viable Alaskan community. Now people want to know, "how soon?" This plan is a solid step towards answering this.

Issues that concerned Napaimute Tribal members and that the plan considers include the following:

- **Land base** – Napaimute must have a land base in order to proceed with reestablishing the community
- **Airport** – A modern rural Alaskan community requires safe, year-round air access
- **Home site development** – In order for Napaimute to develop into a fully functional year-round community, land must be designated for planned homestead development
- **Economic development** – In order for people to live in Napaimute year-round opportunities for income must be available
- **Communication** – For the community to develop safely and efficiently, reliable modern communication technology is required
- **Sanitation** – To establish and maintain a safe and healthy community, water, wastewater and solid waste management must be planned and implemented
- **Power** – Constant, reliable power is critical to the development of a modern community and alternative energy should be incorporated whenever feasible
- **Multipurpose facility** – Many services are necessary to an emerging community; a multipurpose building is the most efficient means of accommodating these essential services during initial development



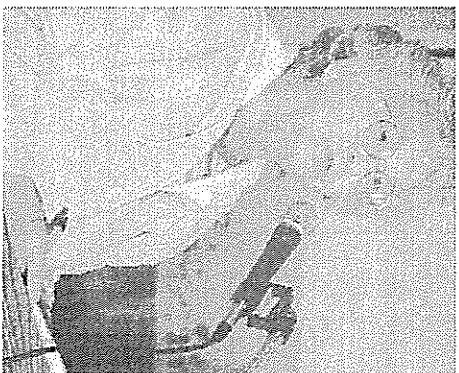
Upper end of Napaimute, summer 2002

Public Involvement

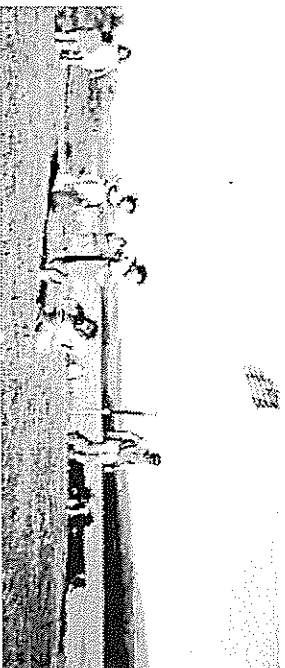
To assist in the development of the Napaimnute Community Plan, several public meetings were held, surveys and newsletters distributed and plan information posted on the Napaimnute website (www.napaimnute.org). On March 17, 2003 the Traditional Council met with ASCG planners to discuss land status and the goals and objectives for the plan. On April 12, 2003 at the annual Napaimnute Tribal gathering, the Tribal administrator gave a presentation on the land status and Tribal members discussed issues associated with reestablishing the community. ASCG gave an update of the plan and presented information about the survey. ASCG provided maps to Tribal members to review potential community layouts and distributed copies of the household survey for members to complete.



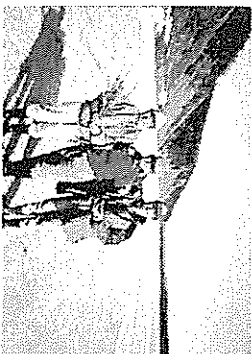
Faces of Napaimnute



Napaimnute Tribal member Delores Alton speaking at regional meeting



Fourth of July activities



Liz Murphy, Dee Matter and Ben Kristowich enjoy a fine day

Survey

In March 2003, ASCG mailed a survey to Napaimute tribal members to document the vision, opportunities and challenges for the reestablishment of Napaimute as a thriving community. The completed surveys accounted for 55 members living in nineteen households. Of the 38 surveys that were distributed to Tribal members, 50% responded. Complete survey results are available for review in the Tribal Office. 32% responses were rural Alaskan residents, primarily from Bethel area and an equal number were from the Anchorage/Masilla area. The remaining 36% of the respondents were from out of state.

Employment & Economy

Those responding to the survey hold a wide variety of jobs and represent many walks of life. This diversity will be an asset to reestablishing the community. The Tribal members surveyed thought that Tourism and Mineral/Oil Exploration would have the greatest economic potential for the community.

Moving to Napaimute

The majority of people responding to the survey have visited Napaimute and 99% expressed an interest in living in the community if the necessary infrastructure were present, though not all could commit to living in Napaimute year-round. Most people's reasons for wanting to move to Napaimute fell into two categories: roots/ancestry and the environment. The table at the left lists the reasons people gave with numerical indicators next to words or phrases which were repeated more than once:

Reasons to move to Napaimute		
Roots/Ancstry	Environment	Other
<ul style="list-style-type: none"> • Parent, Grandparent or Great-grandparent lived there • Napaimute is where I was born and is my roots • Feeling of closeness to family ties • Need to connect with ancestral lands • Would like to move closer to my relatives • Ancestral history • It's part of who I am • Roots • Family Roots 	<ul style="list-style-type: none"> • Lifestyle not as hectic as in other towns • Closeness to the outdoors is very healing • Peace and quiet (4) • Natural beauty of environment • Scenery and quietness • To get out of the city • Wildlife • Love the way of life • It's a wonderful place to raise children • Freedom • Camping – Vacation • Mountains 	<ul style="list-style-type: none"> • I just love it there • Retirement (2) • Part of the initial land claims of Napaimute • Pioneering opportunities—economic opportunity if there is a land base • To dock plane and fly into camp • Raise grandchildren • Gardening (2) • Subsistence lifestyle • Fishing (2)

Conclusion

Although the survey did not elicit responses from all households, some general conclusion may be drawn. There is strong interest in moving to Napaimute, if not year-round at least seasonally (summer) particularly if needed infrastructure was in place. The primary reasons for not moving to Napaimute year-round were the lack of infrastructure, economy and employment opportunities. With the lack of infrastructure and employment identified as the major reasons for not moving to Napaimute, economic and infrastructure planning and implementation would most likely benefit the long term success of Napaimute as a prosperous community.

Goals and Objectives

Napaïmuté Vision

Restore Napaïmuté to a vital, sustainable community that provides a home for our people and preserves our cultural heritage.

The key elements of a comprehensive plan are its goals, objectives and actions that support the overall vision. The vision expressed by Tribal members and the Council is to restore Napaïmuté to a vital, sustainable community that provides a home for its people and preserve its cultural heritage.

Goals are general achievements that the community wishes to accomplish in the future. Objectives are specific and achievable statements in support of a goal. This chapter outlines goals and objectives in support of developing a viable community.

The goals and objectives listed here are not meant to be inclusive, but are representative of the most significantly reoccurring themes received from the input of the Council, Tribal Members at the 2003 annual Tribal gathering, and from the surveys completed.



Planning at 2003 Tribal gathering

Land Ownership Goal

Napaïmuté's top priority is obtaining a land base. This is the first critical step to reestablishment of Napaïmuté as a functioning, viable, year-round community.

Currently, the Napaïmuté Tribal Administrator and Council are in the process of obtaining site control on approximately 650 acres of land. While the final outcome and mechanism used to facilitate the legal transfer of this land to the Tribe is unknown at this time, the public input received to date indicates unanimous support for acquiring traditional areas for the development of Napaïmuté. It is also clear that Napaïmuté Tribal members want to retain control over these lands to the maximum extent possible. There is concern that inappropriate development could occur or that traditional land could be sold off which would be detrimental to the concept of a cohesive tribally-owned community.

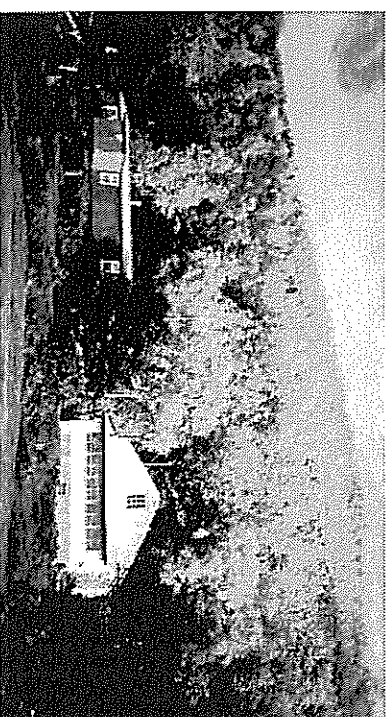
Goal 1: To obtain a land base to develop a community

<i>Objective 1.1 Identify and evaluate conventional and non-conventional options for obtaining a land base</i>
<i>Objective 1.2 Implement the process for obtaining a land base</i>
<i>Objective 1.3 Identify community needs and develop functional alternative layouts</i>
<i>Objective 1.4 Ensure that each Napaïmuté Tribal member has the opportunity to obtain a home site or business lot in the community should they desire to return to Napaïmuté.</i>
<i>Objective 1.5 Evaluate interest from other local people in living in Napaïmuté and implement planned homesite program</i>

Community Development Goal

The Napaaimute Tribe recognizes the need to thoughtfully plan for future land use and community development. There is a need to provide an airport location, housing lots and open spaces for personal residences, community buildings and facilities as well summer fish camps. Several alternative community layouts were reviewed by the Council, which has actively taken part in developing the layout of the new community. By prioritizing improvements in a systematic manner, Napaaimute Tribal members can ensure that funds are allocated properly and the community is logically developed.

Goal 2. To develop a planned, sustainable community with the basic infrastructure
<i>Objective 2.1 Prioritize basic infrastructure needs</i>
<i>Objective 2.2 Decide on an airport location</i>
<i>Objective 2.3 Complete soils/engineering testing to determine which lands would be best suited for development</i>
<i>Objective 2.4 Develop a site plans and specific infrastructure plans and feasibility studies based on community input and technical viability</i>
<i>Objective 2.5 Develop a plan for homesite lots</i>
<i>Objective 2.6 Determine best site for landfill</i>
<i>Objective 2.7 Improve community infrastructure including communication technology and power</i>
<i>Objective 2.8 Plan and construct a multi-use facility to house essential services during initial community development</i>



As homes are restored and improved, planning must take place to create a sustainable community

Economic Development Goal

Tribal members, while still practicing traditional ways, recognize that they live in a modern world where a cash economy is a fact of life. A concern for most Tribal members is the need for jobs in Napaimute. Donlin Creek Mine, located about 40 miles northeast of Napaimute, is planned for full production within five years. This development could supply jobs to residents in Napaimute if they have year-round access. The Tribe has considered other economic opportunities, which they know are needed before most members would consider moving and making Napaimute a permanent home. These include services to residents, travelers from other Kuskokwim River villages and tourists; development of natural resources; and acting as an environmental monitor for Donlin Creek Mine operations as they affect the River.

Goal 3. To establish a variety of economic development projects to sustain Napaimute's economy.

<i>Objective 3.1 Identify and develop an overall economic development strategy including identification and prioritization of short-term economic goals for the community</i>
<i>Objective 3.2 Explore potential for economic development through:</i>
<ul style="list-style-type: none"> • General Store/Lodging • Gas/Oil/Propane Business • Tourism/Eco-Tourism • Bed and Breakfast Establishments • Laundromat, with Public Showers • Mineral/Oil – Exploration and Development • Consultant Services • Environmental Center
<i>Objective 3.3 Research and develop business plans for potential economic development projects</i>
<i>Objective 3.4 Complete applications for economic development projects</i>



Moose Hunters!

**Stop by and visit us in Napaimute,
only 1 hour above Aniak**

Our coffee pot
is always on!
Open 24 hours!

Outboard Gas & Oil Sales

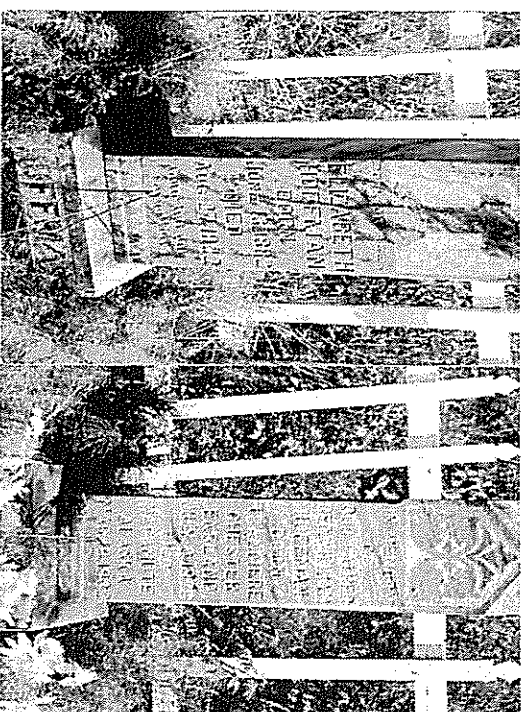
Good Luck Hunters!

Native Village of Napaimute

Traditional Values Goal

For many Tribal members, Napaaimute is their birthplace; the place where they grew up, the place that in their hearts, they have always called home. For others, it is a place that holds their heritage and their shared identity with those that came before. Public input shows that Tribal members cherish many traditional values. These values are part of what is pushing the governing body – the Napaaimute Traditional Council – to develop both the tribe and the village site in preparation for the day when the two will come together again.

Goal 4: To preserve our taproot, the traditional values that make us who we are
<i>Objective 4.1 Plan annual events that celebrate the early residents of Napaaimute and past Tribal leaders</i>
<i>Objective 4.2 Continue to maintain website which highlights history of Napaaimute</i>
<i>Objective 4.3 Encourage transfer of traditional knowledge to the younger generations</i>
<i>Objective 4.4 Register sites on the National Historical Registry</i>
<i>Objective 4.5 Apply for funding to preserve Napaaimute historical sites</i>
<i>Objective 4.6 Establish a Napaaimute museum/archives</i>



Gravestones in the historical Napaaimute cemetery

Land Selection

In keeping with the number one priority goal of establishing a land base, the Council has selected lands on behalf of the Tribe. Through an interim lease with the Kuskokwim Corporation (TKC), the Native Village of Napaunute gained site control over 650 acres of Napaunute's original holdings to use for current and future community purposes. As of late 2003, there are 8 residences, a Tribal office, saw mill, bulk fuel tank, two cemeteries and a barge landing in the original village site. (There are also 8 other permanent residences and a semi-active gold mine within a three-mile radius. There are many Native allotments in and around the original village site. What little land is available in the original village is reserved for future tribal operations. The Council would like to set additional land aside for the main community about three miles downriver from the current village site, and also reserve land on the south side of the river for future development. 14(c)(3) land selection was originally pursued as the land conveyance method to acquire land for village development. The Village Council became concerned with some of the restrictions and State mandates in acquiring land through the 14(c)(3) selection process. The Council then approached TKC and requested a direct transfer of land.



Napaunute as it is now and as it was then

The Council has selected four areas that will make up the future lands of Napaimute which are roughly 28 miles east of Aniak along the Kuskokwim River. They are designated as Tract 1, Tract 5, Tract 6 and Tract 7. The total amount of land they have selected is approximately 650 acres. The following table describes the tracts of land the Council has requested for direct transfer:

Tract	Size/location	Current Use	Planned Use
Tract 5	90 acres of land located approximately 1.5 miles down river from Tract 1.	Currently unused.	<ul style="list-style-type: none"> The location of this tract is ideal for a basic airport. In addition to being on high ground, it is oriented in the direction of the local east/west prevailing winds. Wind data is currently being gathered by the Natural Resources Conservation Service (NRCS).
Tract 6	265 acres of land located approximately 3 miles downriver from Tract 1.	Currently unused.	<ul style="list-style-type: none"> This site has the nearest suitable terrain on the same side of the river (north) as the traditional site. The direct accessibility from the bank of the Kuskokwim River would enable residents to develop homestead lots with minimal assistance. Plentiful timber found on this tract may be useful for lumber for community development. Once cleared, the site also has potential for small-scale farming.
Tract 7	294 acres of land located across from Tract 6 on a bluff on the south side of the Kuskokwim River.	NRCS has erected an automatic weather station on this tract to collect wind data for airport planning.	<ul style="list-style-type: none"> When there is a substantial permanent resident population on the north side of the river, Napaimute will need to consolidate into one community, occupying one central area which is planned for Tract 7, the "community reserve." It is the only nearby area suitable for a full scale community of up to 300 people. Located at a higher elevation than the other tracts, Tract 7 is mostly covered in tundra underlain by permafrost. It would be too expensive to develop Tract 7 without a sizeable permanent population to justify the cost. The Council plans on establishing a 100-square foot test plot by removing the insulating tundra to see if over time it stabilizes. This area is also adjacent to areas that may be suitable for a full scale airport.

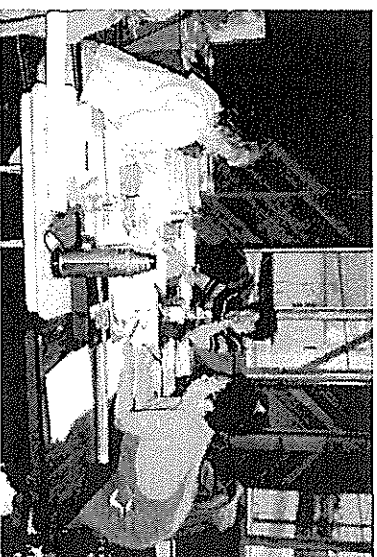
Red areas identified for Direct Transfer from TKC to Napaimute.
Blue areas identified for minimal ANCSA 14(c)3 reconveyance to be held in trust by the State.



Land Use Acreages Needed

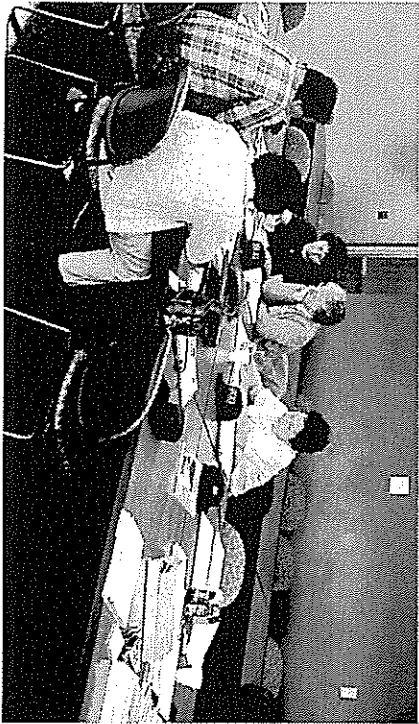
Acreage needed for various facilities was researched. The following estimates are based on several rural Alaskan communities, the *Georgetown Community Master Plan*, the National Recreation and Park Association's *Recreation, Park and Open Space Standards and Guidelines*.

1. School: 15 acres for a combined site – which includes outdoor playing fields
2. Post Office: 1-2 acres
3. Landfill: With a 1.2% growth for a community of 50 (roughly 64 people in 20 years), 2 acres would be needed.
4. Sewage Lagoon: Based on a loading of 0.17 lbs/person/day and a treatment efficiency of 12 lbs/acre/day, two cells totaling 3 acres would be needed for a population design of 100 people.
5. Cemetery: 0.5 acres
6. Park: 15 acres
7. Clinic: 1-2 acres
8. Bulk Fuel Storage: 1 acre minimum for a population of 100 with a 100,000-gallon capacity. 2 acres would be needed if an equipment storage facility were included.
9. 10 Miles of Road with Utility Easements: Assume a 50-foot wide corridor (the road will be approximately 24 feet) depending on side slopes, drainage ditches, etc. Approximately 60 acres will be required.



Council members discuss land selection

Land Use Plan



Meeting with ASCG to work on Community Master Plan for Napaimute

ASCG met with the Napaimute Traditional Council on March 17, 2003 to discuss land selection and their vision of community land use. A conceptual map showing a community layout on the 650 acres of proposed tracts was displayed for comment at the Native Village of Napaimute Annual Tribal Gathering on April 12, 2003. Through correspondence with the tribal administrator during the summer of 2003, further changes were made to **Figure 9 Napaimute Proposed Land Use Map** which is shown on the following page. As part of the plan, the conceptual map can be used as a tool to both generate funding and to show TKC that the village has considered future habitation of the site in great depth. As additional field data is gathered, the land use map is likely to change.

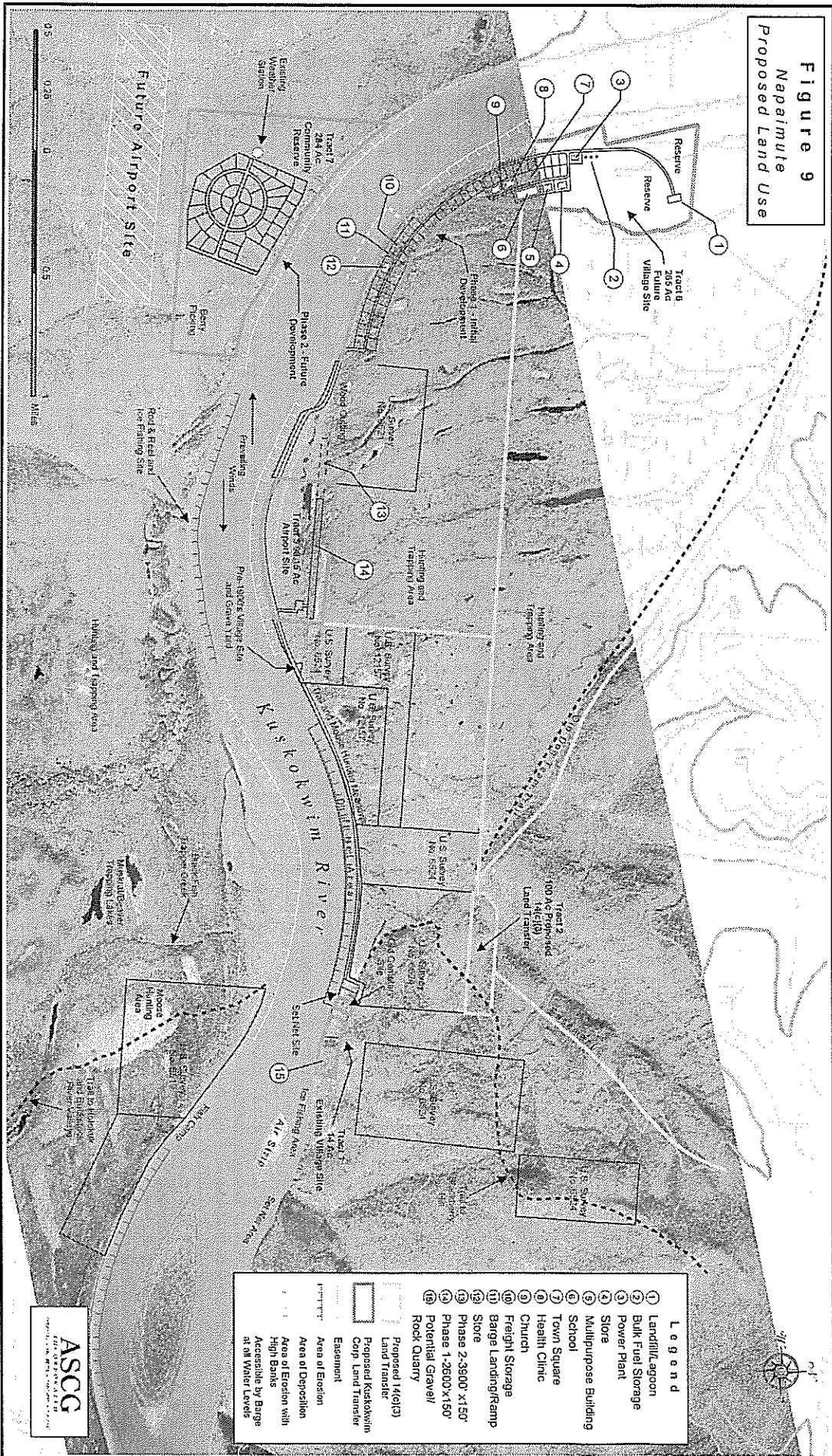


Napaimute Annual Tribal Gathering, 2003

Napaimute Vision

*Restore Napaimute to
a vital, sustainable
community that
provides a home for
our people and
preserves our cultural
heritage.*

Figure 9
Napaimute
Proposed Land Use



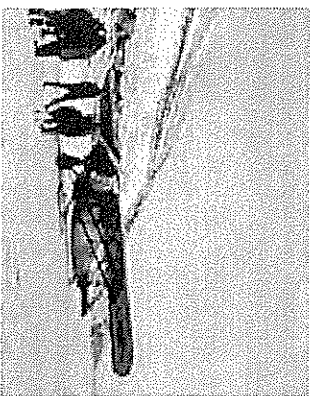
Community Priorities

Several basic infrastructure facilities are recommended in the development of the community of Napaimute. The information below is not all-inclusive but begins to address some of the most critical infrastructure needs, including airport, homestead development, economic development, communication, sanitation, power and a multipurpose facility.

Airport

The Council identified the construction of an airport to be of high priority to Napaimute.

There is a gravel bar in the middle of the river, slightly upstream from Napaimute that has been historically used as a temporary runway; however, it is short, dangerous, and not accessible during critical freeze-up and break-up times. Two known plane crashes have occurred in past years by pilots attempting to land there, and it is rarely used.

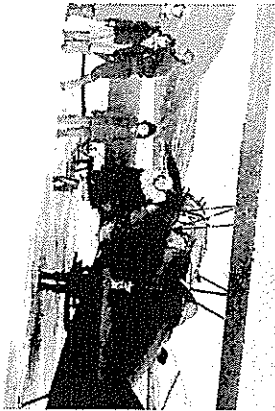


The first plane to land in Napaimute

The Traditional Council realized during initial planning for the community that a safe airfield with year-round accessibility was important to the successful development of Napaimute. The Council identified a location for a runway on Tract 5 between the old village site and the proposed homestead tract on the north side of the river. This tract contains approximately 3,100 lineal feet paralleling local prevailing winds.

The Native Village of Napaimute recognizes that the probability of obtaining the multi-million dollar funding necessary for a full-scale runway project is extremely low and will most likely not be justified until Napaimute has a large enough permanent population base. On the other hand, it will be difficult to build a permanent population without year-round air access to and from Napaimute. Nobody wants to stay during the critical times of break up and freeze up when access via the river is impossible. In 2003, a person staying in Napaimute during the fall would have been physically isolated from the rest of the world for four months due to the unusually warm winter. River conditions didn't stabilize to allow for safe travel until late February. This is unacceptable for a community in the modern world. People need to be able to travel at will for business, pleasure and medical reasons, and to receive goods and services such as regular mail.

To achieve their need for air access, the community looked back at how other villages developed their runways over the years. The days when most villages had no runways are still in the living memory of our middle-aged and elder members. Rivers were the first runways for much of Rural Alaska; the water in summer, the ice in winter, no plane service during break up and freeze up unless there was a convenient sand or gravel bar. Later, as the water in the villages, the need for permanent airfields became important and some energetic individual or government would build one. There are still large communities operating with 1,800 feet or less of runway, though this is changing rapidly with the State's airport improvement program. The standard community class airport suggested by the State of Alaska and the Federal Aviation Administration includes a runway length of 3,300 feet with an additional 300 feet of safety area on each end for a total minimum length of 3,900 feet.



Russ Merrill's Plane, Napaimute teacher, George, Pilot, Elsie, & Lillian

The tribal office has spent much time looking for a solution to this dilemma. They have asked the question, how can Napaimute get an airport in this initial phase of its modern development?

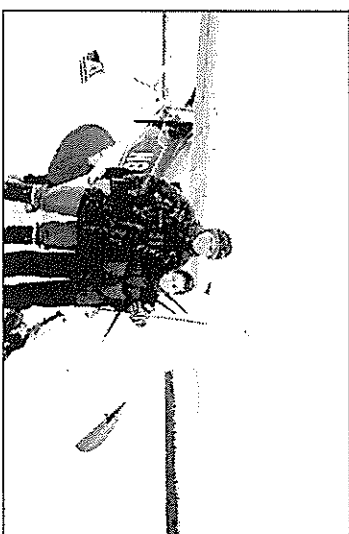
While there are still several obstacles to overcome in pursuit of a tribally owned airfield, precedents set by other villages that are local airport operators provide a guide for Napaimute to follow in reaching its goal of safe, year-round air access that will help solidify the establishment of Napaimute as a permanent Alaskan community.

FAA has said that Napaimute could build an airport in two phases. The Napaimute Council has identified Tract 5 for future airport development in this two-phase process. Phase I would be a 2,000-foot runway with 300-foot safety areas on each end (total 2,600 feet) which would fit nicely into the area identified for a basic airfield in Tract 5 as shown on Figure 9. In later years, Phase II will be implemented to bring the airfield up to the 3,300-foot standard. The second phase runway would encroach into the nearby Native Allotment to the west. The Native Village of Napaimute is in the process of soliciting for firms to complete a feasibility study to help them develop the airport. So, at this time, Napaimute plans to "scrape" out an airfield that is safe and accessible, but on a smaller scale than the community class standard. It appears that a tribally constructed, operated, and owned airfield is the best solution for the short term or Phase I.

For Phase II, Napaimute will seek FAA funding for airport planning and development. FAA usually begins by funding an airport master plan to assist in an appropriate design for the airport. To obtain FAA funding for an airport master plan, Napaimute must contact FAA about their desire to become an airport sponsor and request funding for an airport master plan (master plans take about two to three years). To receive FAA funding, the Tribe must complete a Disadvantaged Business Enterprise (DBE) plan and must demonstrate their capacity to administer funds. The FAA also requires a 6.25% match. Typically, the 6.25% match is funded through the State of Alaska and the community sponsor, with each paying 3.125%. Communities have been successful in securing their 3.125% match through the Denali Commission. Typically, Airport Master plans costs approximately \$300,000 and include surveying, aerial mapping, geotechnical investigations and wind analysis to assist in the planning effort. The wind anemometer installed in Napaimute may assist in development of the airport plan.

To receive funding for airport design and construction, land ownership and year-round residents must be established and the airport must be listed on the FAA's federal list of airports called the National Plan of Integrated Airport System (NPIAS). To get on the NPIAS, the community would have to meet the following requirements:

- The airport is included in an accepted state or metropolitan airport system plan.



Skiplane at Napaimute

- The airport serves a community more than 30 minutes from the nearest existing or proposed NPIAS airport.
- The airport is forecast to have 10 based aircraft within five years.
- There is an eligible sponsor willing to undertake the ownership and development of the airport.



The Tribal Council has designated this site for airport development.

The FAA will also require the village to operate and maintain the airport for 20 years beyond the issuance of the airport grant. Landing fees (a fee generally passed on to the consumer) is the most common way to fund these activities. FAA would provide, as part of the airport project, a snow removal equipment (SRE) building and equipment to maintain the airport. Napaimute would have to supply gas, equipment maintenance, heat to the building, and labor which is estimated at \$50,000 a year or more. If the NPIAS listing is unattainable, the community could seek funding from other sources.

The following is a preliminary cost estimate that the Council used for initial planning purposes:

Napaimute Airport Cost Estimate					
Description	Unit	Unit Price	Quantity	Amount	
Clearing and Grubbing	LS		1	\$20,000	
Geotextile Fabric	SY	\$1.00	3,000	\$3,000	
Crushed Aggregate	CY	\$8.00	15,000	\$120,000	
Structural Fill	CY	\$6.00	60,000	\$360,000	
Mobilization/Demobilization	LS		1	\$50,000	
Construction Surveying by the Contractor	LS		1	\$45,000	
Estimated Construction Cost				\$598,000	
Design and Environmental (10%)	LS		1	\$59,800	
Planning and Project Management (5%)	LS		1	\$29,900	
Engineering and Construction Management (10%)	LS		1	\$59,800	
Estimated Design and Construction Management Cost				\$149,500	
				\$747,500	

*Assumes 2,000' x 75' R/W, No lighting, no nav-aids, no road cost

In the summer of 2004, a Preliminary Feasibility Study for the Proposed Napaimute Airport will be conducted that will refine these estimated costs. This study was funded through BIA's FY 2002 Transportation Planning Grant.

On the following page is a diagram of a typical airport layout.



Alutcheb has an airstrip similar to that under consideration by the Napaimute Tribal Council



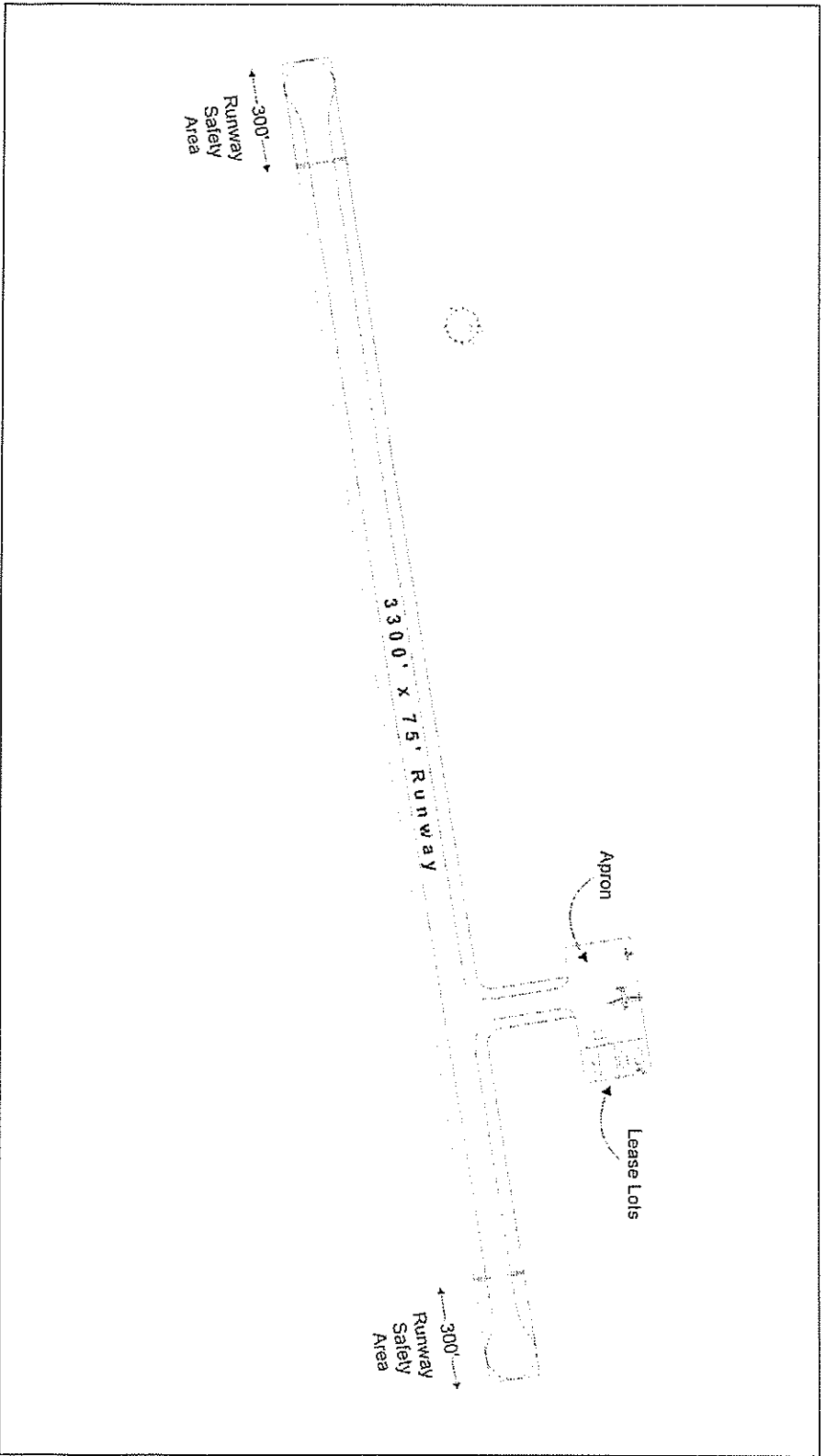


Figure 10 Typical Community Class Airport Layout

Homesite Development

Once a land base is finalized, it is critical to determine which areas will be used for specific purposes. A key concern to the Tribal Council is to set up a system for homesite development. One way to begin this process is to study the methods of other entities who have performed a similar endeavor. The state regulations that governed the Alaska Homestead Act (Located in Appendix E) provide some insight into the steps necessary for homesite development. The components of the project include:

- Survey of the lands involved and marking of sites available for homesites
- A system to apply for permits to receive a homesite
- List of qualifications an applicant must meet to receive a permit
- Reasons for which a permit could be revoked
- How the permit is granted
- Priority of applications

The Native Village of Georgetown is currently in the process of establishing a homesite program in their community. The Tribal President negotiated with the state Municipal Land Trustee for the Georgetown Tribal Council to administer a homesite program in Georgetown. The process took time. Public notices had to be posted and published in appropriate newspapers. Affidavits of these postings were submitted to the state. The state indicated that Georgetown would have to waive their sovereign immunity from suit for claims arising from their activities involving the land disposal. Currently the Council is awaiting legal counsel on this matter. When that obstacle is worked out the process will go forward. Components of the program include:

- Original (not descendant) members are given an opportunity to apply for a lot using a state application form.
- Applications are submitted to the Georgetown Tribal Council for review and approval.
- Right-of-entry (r-o-e) permits are granted to applicants.
- Approved applicants begin construction of habitable dwellings as defined in the r-o-e permits.
- Maintenance of setbacks and adequate separation for wells and septic systems is closely monitored by a Tribal Land Committee.

The Georgetown homesite project utilized the state's r-o-e permits and land lease documents as templates, modifying them to suit the Tribe's needs. They inserted language requiring applicants to submit site plans including housing placement, well location and septic system location, and any other improvements planned to the lot. The site plan is required to contain accurate locations and distances for all improvements. The Council's Land Committee reviews these plans prior to any construction or installation. Language was also added that the applicant must provide the Council with the location of a planned pit privy and obtain approval from the Council before construction of a pit privy.

The Georgetown Tribal Council indicated that they would share additional information and documents when their legal position had been clarified.

Economic Resources

Employment in Napainmute is seasonal and primarily through the tribal government. Residents also have limited opportunities for cash employment in the surrounding area and subsistence supplements local incomes. Lack of economic opportunities is commonly cited as the greatest obstacle for year-round establishment of Napainmute. Currently, the Tribe is actively involved in the following economic ventures:

Gasoline/Oil Sales

In the summer of 2002, the Tribe purchased a 5,000-gallon double-walled tank. A limited amount of gasoline was purchased to test sales during the height of the fall hunting season in September of that year. All the gasoline was sold with a week still left in the season. Up to 80 boats travel past Napainmute each day during the September hunting season. Clientele for gas sales include the surrounding communities of Aniak, Kalskag, Chuathbaluk, and Crooked Creek; a nearby fishing lodge; and Lower Kuskokwim residents traveling on the river.

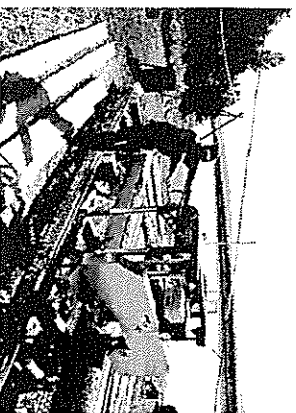
In 2003, the Tribe continues to operate their gas business and expanded it this fall to include the sale of a few basic snack food items. The tank is filled twice per season but it appears that a third delivery of fuel will be needed this season.



Tank installed at Napainmute

Equipment Rental

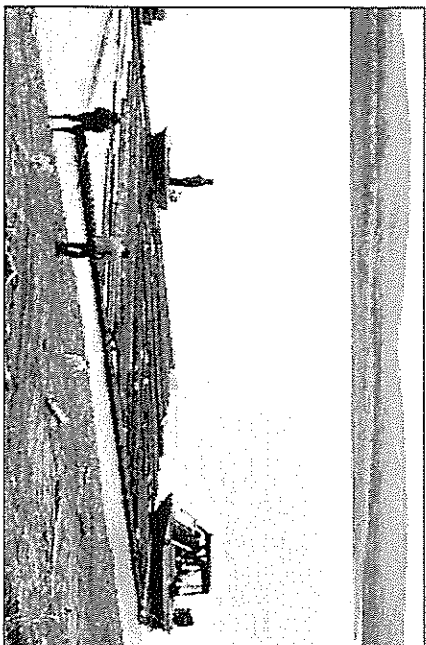
The dozer, sawmill, and other tribally owned equipment are available for rental with a 40% reduced rate for Tribal members. To date, use has been limited to Tribal members and Tribal ownership of this equipment can aid in future infrastructure development.



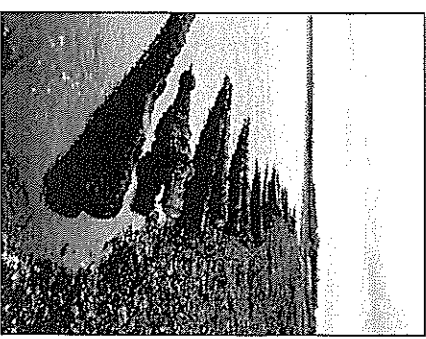
Equipment is available to tribal members for rental at a reduced rate



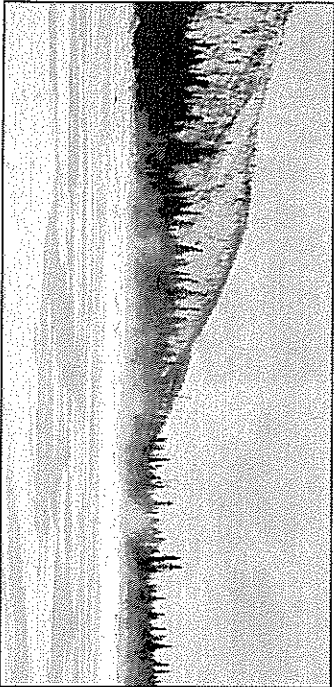
Bringing out logs from cutting site



Delivering the logs to Napaimute



*Logs await use along the
Kuskokwim River bank*



*The State granted the Tribe a timber-cutting permit at this site 3 1/2
miles from Napaimute*

Timber Sales

The Tribe has obtained a timber permit to harvest trees on State land located near Napaimute. The timber is intended to be used for local Tribal building projects. In the future, timber could be sold for other purposes. The Tribe is also considering applying to the Kuskokwim Corporation for rights to harvest timber on Corporation lands.

Lodging

The Tribe has a rental unit for visitors. Opportunities exist to build additional rental units or a lodge to accommodate tourists.

Donlin Creek Mine

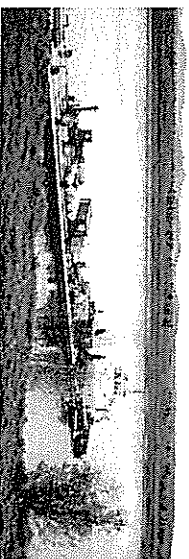
Donlin Creek is located near the Kuskokwim River, 12 miles north of Crooked Creek. See Figure 11. The Donlin Creek Mine, which is being developed by Novagold Resources Inc. and Placer Dome Inc., is located entirely on land owned by Calista. At this time, access is primarily by air; a 5,000-foot airstrip is located at the site. There is also a 15-mile winter trail from Crooked Creek to Donlin Creek. Federal and State funds have been earmarked for a road to Donlin Creek from a proposed dock on the Kuskokwim River about six miles below Crooked Creek. These funds, totaling approximately \$14 million, are for permitting, design and an environmental impact study for the road, which are expected to be started in 2004.

The Donlin Creek prospect is described as a "major gold occurrence." As of April 2003, the measured and indicated gold resources there totaled 11.1 million ounces. Inferred gold resources measure 14.3 million ounces. The project is in the pre-feasibility stage, which is expected to be completed in the second quarter of 2004.

As the Donlin Creek Mine project progresses, there will be opportunities for work for Napaimute residents.



Donlin Creek Mine worker



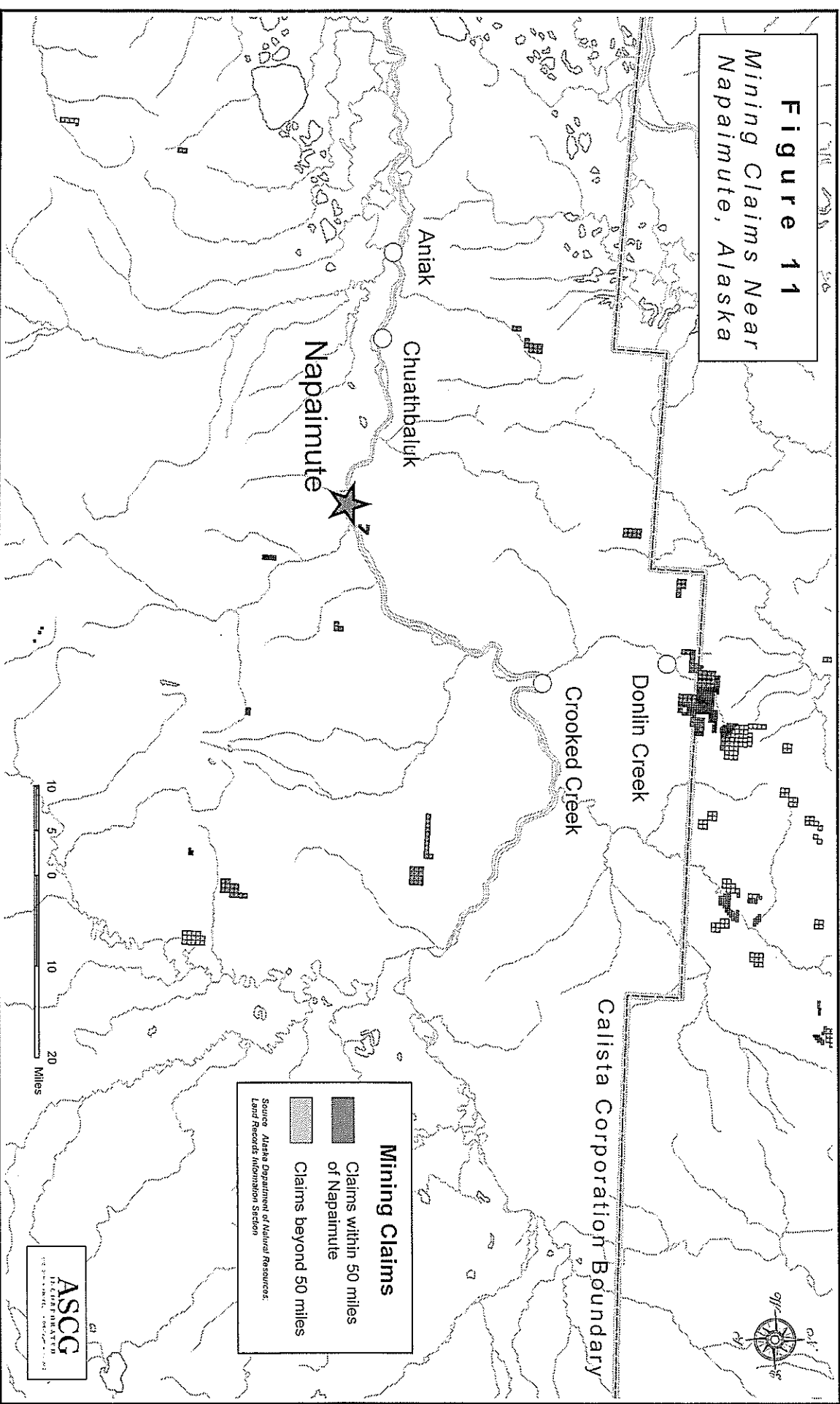
The fuel barge "Napaimute" unloads cargo at the dock.

Proposed Economic Resources

According to the Tribal member survey, meetings with the Council and input at the 2003 annual meeting, potential economic opportunities for residents of Napaimute include the following:

- General Store/Lodging – the general store could offer visitors to the community as well as residents a place to purchase food, gas, oil, propane, hunting and fishing licenses, tackle and supplies, repairs, and other necessities for enjoying the benefits of Napaimute's great location. Phone service and internet access could also be made available.
- Gas/Oil Business
- Tourism/Eco-Tourism -- summer operations could be geared toward visitors from outside Alaska who come for wildlife viewing, sport fishing, hiking, camping, experiencing Native culture, visiting fish camps and historical sites. In the winter, visitors from Bethel and other parts of Alaska look for recreational opportunities such as cross-country skiing, dog mushing, snow machine riding, wildlife viewing, and relaxing with hot tubs, good meals, astronomy and the northern lights.
- Bed and Breakfast Establishments – like the store, B&Bs serve the needs of tourists. Besides food and a place to sleep a B&B offers a personal touch and interaction with local people
- Laundromat, with Public Showers – this facility could also serve both the local population and visitors to the community, offering a washeteria, showers and other related services.

Figure 11
Mining Claims Near
Napaimute, Alaska



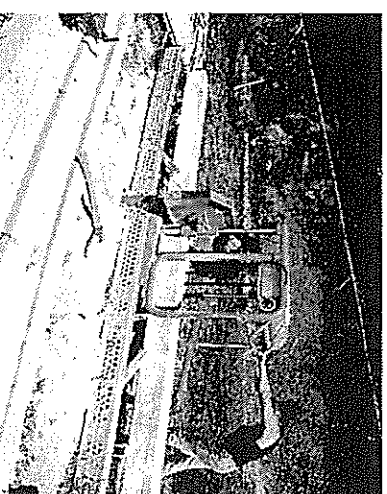
Mining Claims

- Claims within 50 miles of Napaimute
- Claims beyond 50 miles

Source: Alaska Department of Natural Resources, Land Records Information Section

- Mineral/Oil – Exploration and Development
- Sawmill Business – produces lumber and cabin packages for local use. There is also the potential for firewood sales to down-river communities.
- Consulting – various Tribal members have training and technical expertise that can be marketed.
- Environmental Oversight – with development occurring nearby, such as the proposed dock downriver from Crooked Creek and road from there to Donlin Creek Mine, Napaimute is uniquely situated to act as an environmental “watchdog” for the region, monitoring water quality and other related issues.

Just as communities along Alaska’s highway system serve the needs of highway travelers, Napaimute proposes to serve the needs of travelers along the Kuskokwim River. The River links the area’s communities providing the potential for a customer base of several thousand. Already, the fuel and snack food store serve these travelers. As the community grows, so will opportunities to tap into this market.



Milling lumber for the Napaimute storage building



Logs for the multipurpose building wait in the staging area at the sawmill

Communication

The Traditional Council recognizes that the development of a technologically current communication system for the village is a key component to year-round residence. In this age of practically instantaneous communication, Napainmte's potential residents need to know that they will be able to conduct business and keep in touch with friends and relations from their homes in Napainmte. The village currently has a VHF radio, Internet Dish, Indium Phone and a satellite dish. A huge step toward meeting the goal of up-to-date communications was taken in March 2004 when a radio phone with similar service to standard telephones was installed in the Tribal Office.

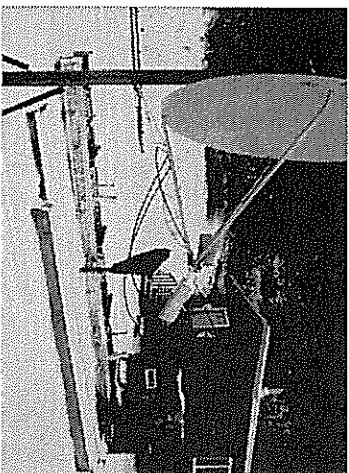


Traditional Chief, Delores Hutter makes first phone call from Napainmte Tribal Office.



High technology is a key tool in bringing back to life the Native Village of Napainmte. Above, Mark Leary, Tribal Administrator and Shelly Leary, Tribal Council Secretary, work from the log cabin village council office. Computers, hooked up to the outside world through a Starband Internet satellite dish, allow them to conduct business hundreds of miles away from urban centers. Mark Leary says he discovered the power of the Internet when he was unable to locate any animal traps in Anchorage, but could easily purchase them on worldwide web.

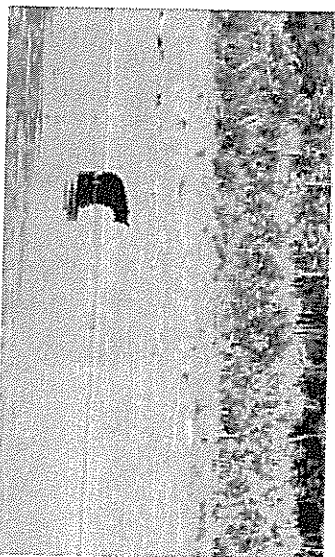
Photos by Ted Horner



Internet dish technology allowed the Tribal Office to operate out of Napainmte for the first time.

Sanitation

The Council recognizes that to establish and maintain a safe and healthy community, water, wastewater and solid waste management must be planned and implemented.



Black bears are found in the vicinity of Napaimute

Solid Waste Management

As the level of activity has increased in and around Napaimute in recent years and is expected to continue to rise with the development of the community, the need for a solid waste management strategy has become another high priority for the Traditional Council.

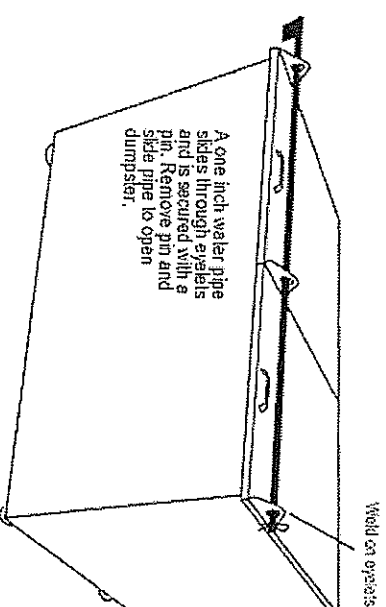
In past years, area residents burned as much solid waste in individual burn barrels as possible. Food scraps were deposited into the river. Cans, glass, and other non-burnables were collected and hauled by individuals to the nearest community land fills – usually in Aniak or Crooked Creek. This was done by boat or snow machine. More cumbersome items such as batteries, waste oil, old trucks, junk snow machines, and rusty drums were taken away by barge and disposed of as far away as Bethel – 160 miles downstream. The current amount of solid waste being produced has made these past practices cumbersome and even, at times, hazardous.

The individual burn barrels pose a potential wildlife threat during drier periods of the year. Bags of non-burnable waste sit around in various areas waiting for the next trip to the Aniak dump. These attract animals which sometimes get into them and spread garbage. Bears coming into the community are of the greatest concern. Each year there are instances of close encounters with bears that have come into Napaimute to raid garbage. Most recently a four year old child walked right into a young black bear that was behind a house digging in the trash.

In 2003, the Native Village of Napaimute applied for and received a Solid Waste Demonstration Grant from the Alaska Native Health Board to begin addressing solid waste management for the developing community. The funding was used to develop a solid waste management plan and to purchase and install a 1,000-gallon, portable burn box, two steel "bear proof" dumpsters,

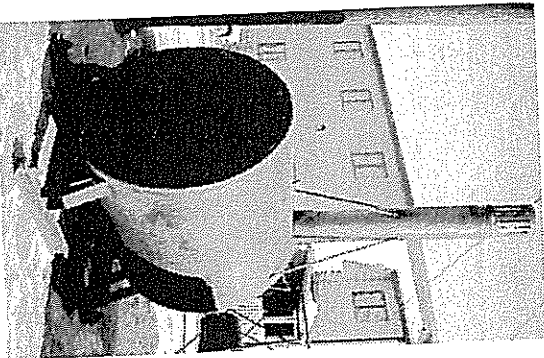


Bears attracted by trash pose a hazard to the village

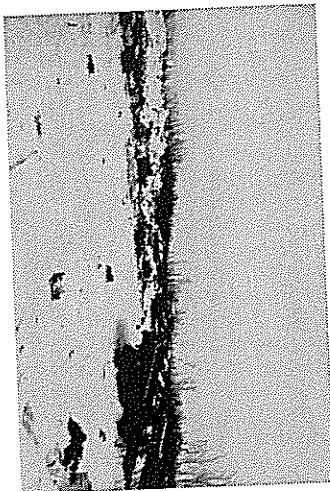


Weld on eye-bolts

Figure 12 Typical bear-proof dumpster



Burn box will reduce solid waste that has to go into a landfill.



Napaimute does not want an unregulated dump like this one in another village.

strategy, until a more comprehensive solid waste management study can be completed. The above strategy will be needed as more residents come to Napaimute. dumpsite will be minimal – mainly ash. In the long term, a permanent landfill will be needed as more residents come to Napaimute.

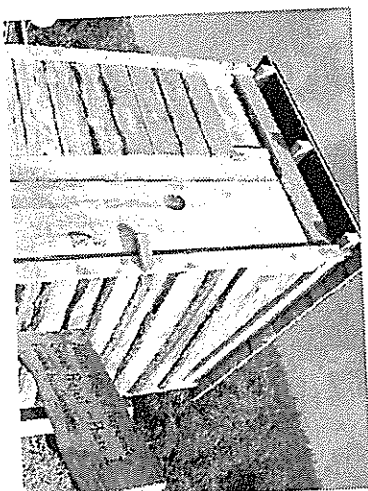
Sanitation

On-site wells and septic systems are currently used for sewer and water services in Napaimute. This system requires a minimum of maintenance and if soils are suitable is an appropriate method for water delivery and waste disposal for Napaimute. Should the community desire an alternate method, Village Safe Water funds can be applied for to assist in the development of a Sanitation Master Plan. The Sanitation Master Plan would also be useful in identifying an appropriate location for a landfill. The VSW applications are due to the agency by mid-September and are available on their web site.

Figure 13 on the following page shows the layout of existing wells and leachfields. In addition, it indicates areas in which additional wells could safely be drilled and the appropriate distances between wells and leachfields. Besides being separated from wells, leachfields must be set back from the river at least 100 feet. Figure 14 shows possible lot layouts for appropriate well and septic separation.

and individual aluminum can crushers. The burn box, installed in the spring of 2004, is large enough to meet the growing needs of a developing community for several years to come. The dumpsters will serve multiple purposes. Besides providing a centralized secure area for storing solid waste, one will be for storing burnable garbage until scheduled burn times. The other will be for the storage of aluminum cans that have been compacted by individual households with the can crushers. Arrangements have been made with one of the local barge companies to pick up and deliver the aluminum to the recycling station at Bethel at no cost to the village. This will be done a minimum of twice per season.

The Council has identified an interim dumpsite that will be used in coordination with the previously described solid waste management strategy. The Council will ensure that deposits in the interim



Sanitation Contacts

State of Alaska, Department of
Environmental Conservation
Ken Collison
(907) 465-5137
Yulkon Kuskokwim Health Corporation
Karl Powers
(907) 543-6427
karl_powers@ykhc.org

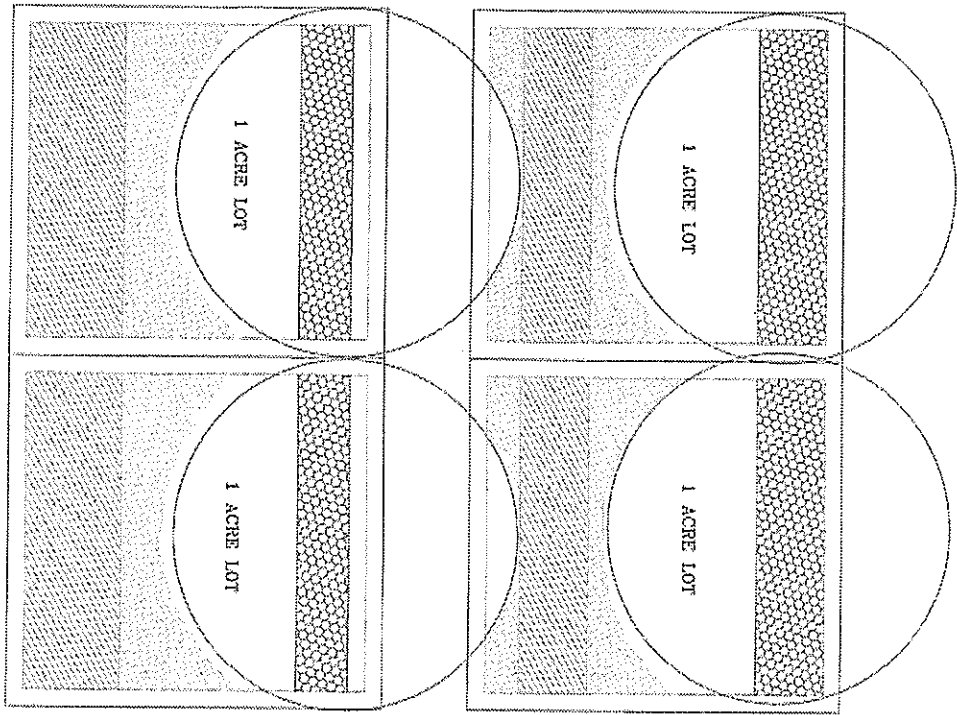


FIGURE 13

SANITATION SYSTEMS LAYOUT

WELL AND SEPTIC SEPARATION LAYOUTS

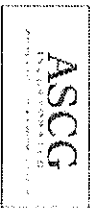
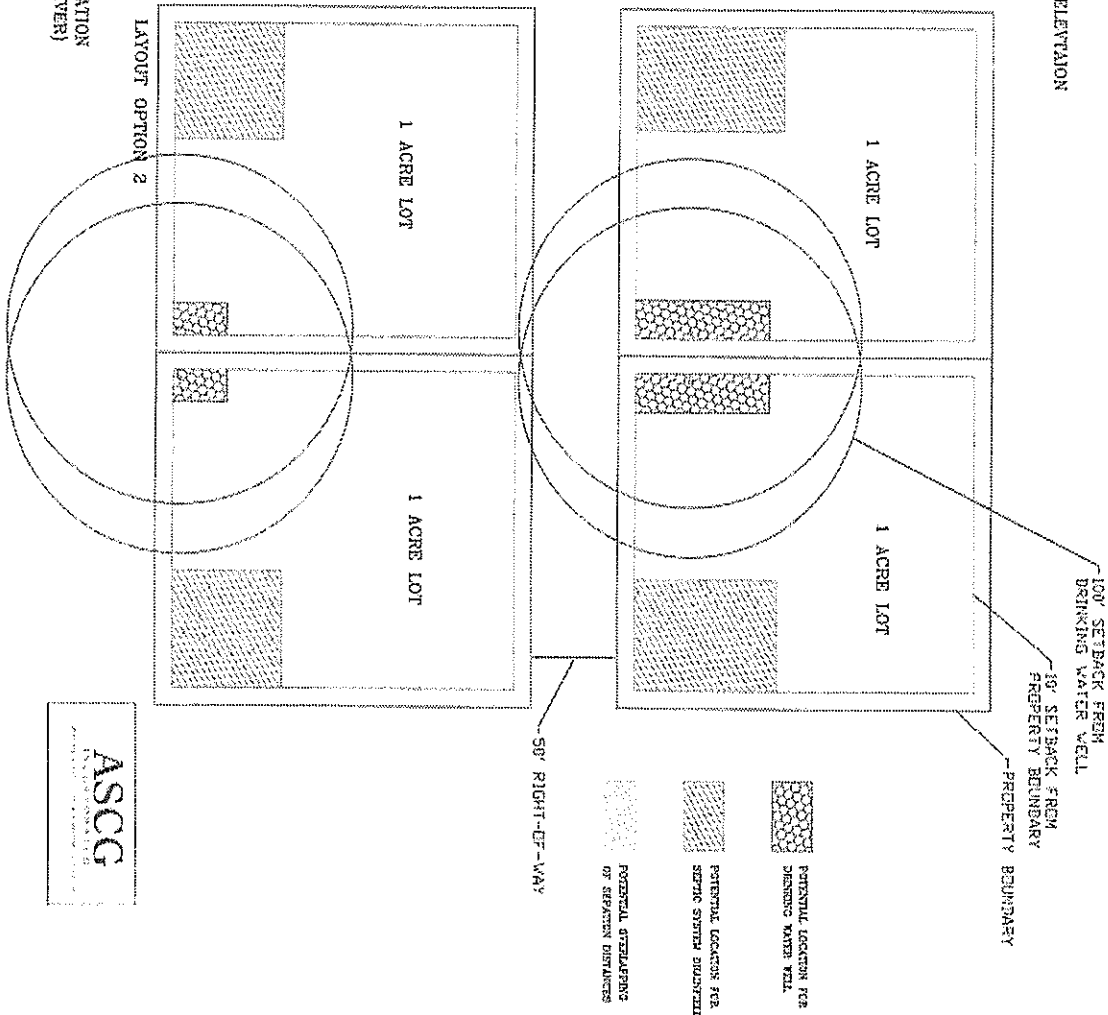
LAYOUT OPTION 1



HIGHER ELEVATION

LOWER ELEVATION
(TOWARDS RIVER)

LAYOUT OPTION 2



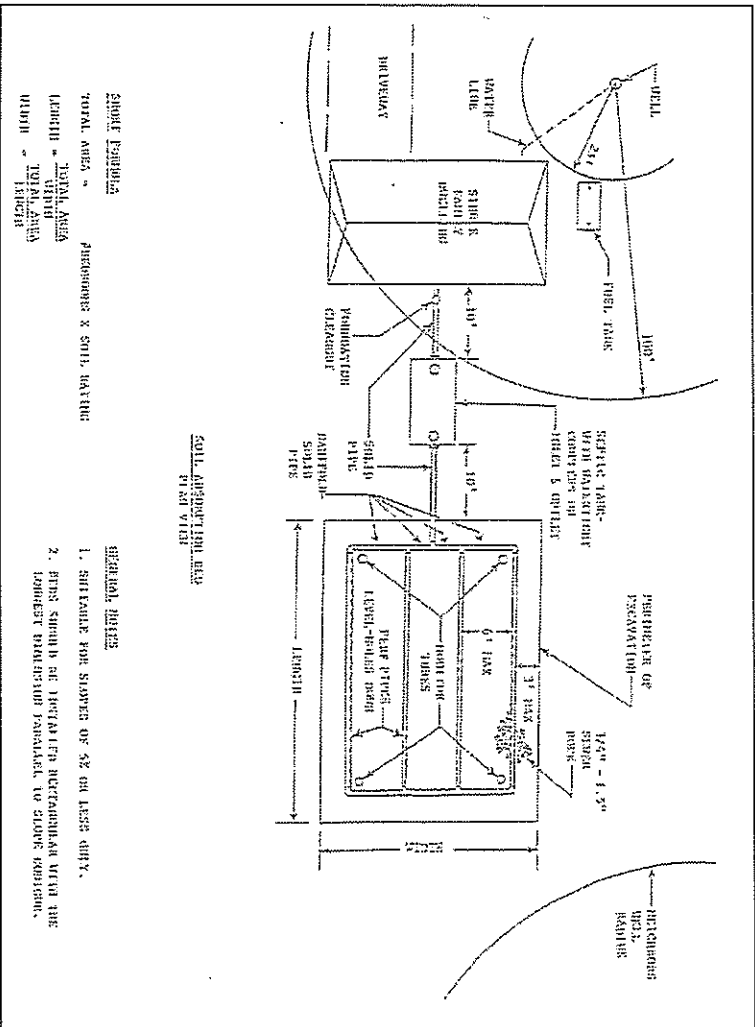
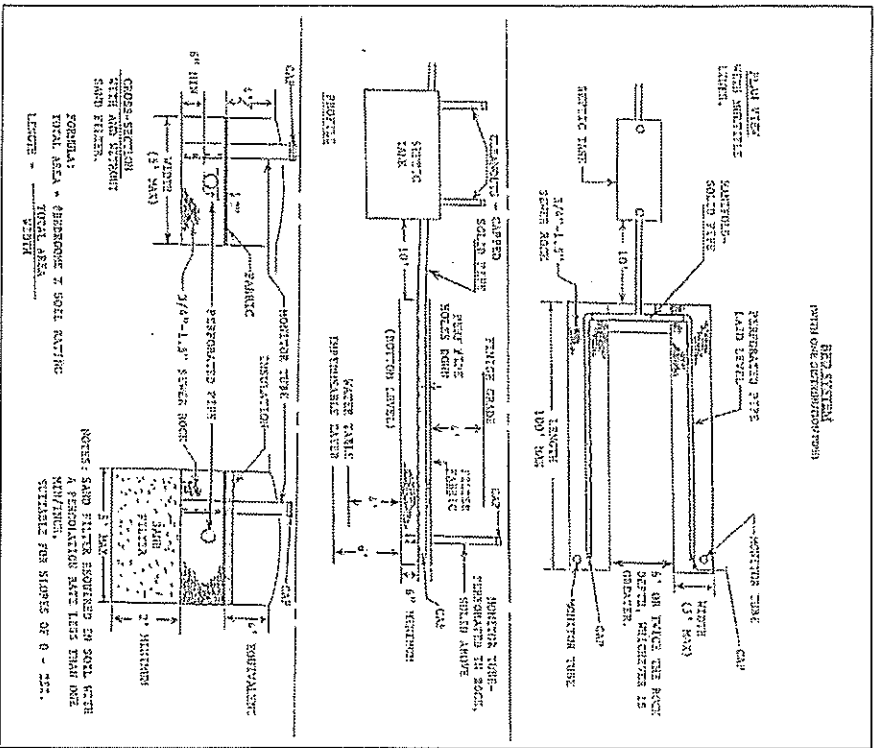


Figure 15 Bed System with One Distribution Pipe

Figure 16 Soil Absorption Bed - Plan View



Figure 17 Soil Absorption Bed – Profile

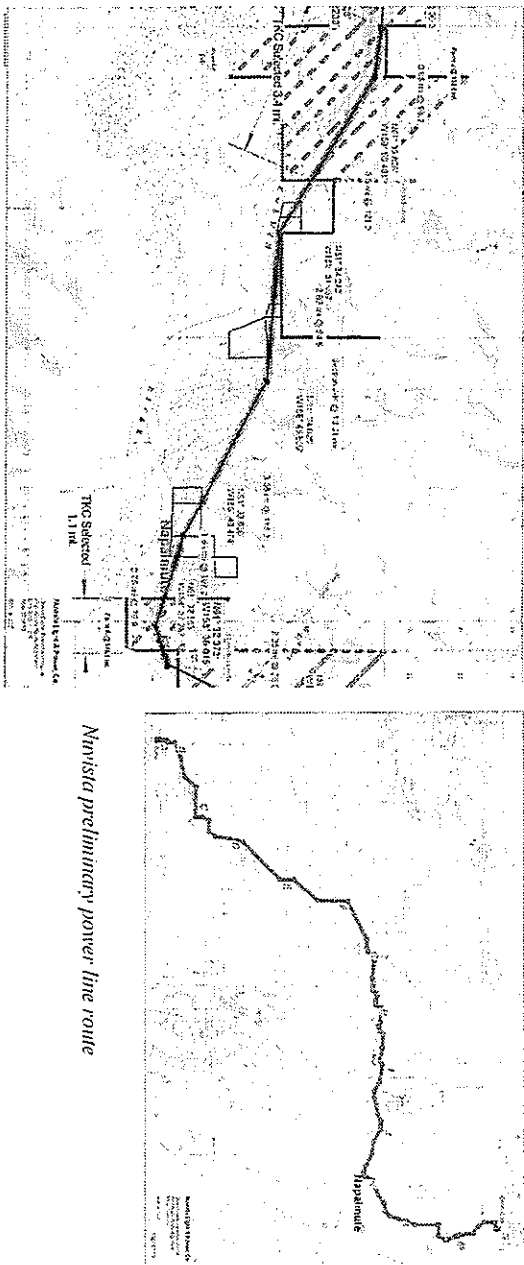
Power Generation

The Napaimute Traditional Council understands that constant, reliable power is necessary for the establishment of a modern community. They believe that alternative energy should be utilized whenever it is feasible.

The proposed power generation and distribution facilities for the community of Napaimute includes power capacity for 8 initial households, one office building and two additional future public or commercial buildings. It is assumed that the power facilities would provide power for an initial population of 25 to 40. There is also a possibility that the community could expand to remote tracts. The power generation and distribution systems should be capable of meeting initial energy requirements as well as allow expansion of the system for future growth at minimal additional expense.

Electrical power facilities would provide distribution subsystems for power plant station service, for the existing village site, and a future village site.

It is unknown whether alternative sources of energy, such as wind or water power may exist in sufficient quantity to provide fuel free production. Alternative sources of energy, if they exist in sufficient dependable quantities, might be a consideration for supplemental energy that could offset fuel costs.



A report outlining general design considerations for a fuel oil fired power plant, an aerial primary power distribution system, and fuel storage, along with cost estimates, is located in Appendix D. Waste heat (rejected heat) utilization to increase the overall energy efficiency is also an important consideration and the general parameters of a proposed system are outlined.

The General Manager of the Middle Kuskokwim Electrical Cooperative (MKEC) visited Napaimute in August 2003 to investigate the feasibility of providing power. MKEC has expressed an interest in providing permanent power to Napaimute. Another possibility exists; Nuvista, a subsidiary of Calista Corporation, may be running a power line to the Donlin Creek Mine site. The planned route for such a power line runs in the vicinity of Napaimute and it

is possible that Napaimute could be connected to this line. This project is only in the feasibility stage.

Bulk Fuel

The Alaska Energy Authority (AEA) has a bulk fuel storage data base and priority list which includes information on approximately 1,100 tank farms in 171 rural communities. Most of these tank farms have serious deficiencies. To be on the list, year-round residency is a requirement. If Napaimute is unable to be included on the priority list, the Denali Commission may consider funding the project if the community can show they have special needs. Preliminary business plans must be agreed to, and site control attained before the Denali Commission will fund any new energy projects.

Alternative Energy

The Napaimute Traditional Council has also expressed the desire to incorporate an alternate energy component into any power planning for the existing and future community. Solar and wind data for the immediate area have been recorded since 2001 on a remote sensing weather station installed by the Natural Resource Conservation Service. USDA is scheduled to visit Napaimute in 2004 to investigate the possible use of a local stream as a hydro-power source and to inventory the terrain and vegetation.

Potential funding sources are:

- HUD/CDBG - Grants
- USDA – Rural Development Direct loans
- Dept of Energy's Tribal Energy Program
- USDA Rural Utilities Program
- Denali Commission

The following list gives an overview of alternative energy possibilities:

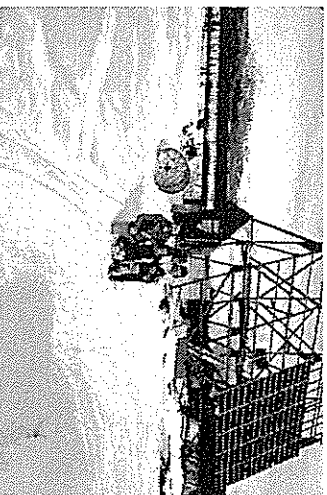
Biomass Resources. Includes any organic matter available on a renewable basis, including dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials. The handling, collection logistics and infrastructure are important aspects of the biomass resource's success. There is a product called a renewable fuel-gas generator that could potentially work well for small communities with small sawmills like Napaimute. A combination of heat and power could be attained through the use of a variety of woody mass materials such as wood chips, pellets, and scraps. Currently, there is a demonstration model being used at a sawmill in Salcha, Alaska through the Community Power Corporation (CPC) and the US Forest Service.

Hydropower. Small-scale hydropower systems generate between 0.01 and 30 megawatts (MW) of electricity. 30 MW generates enough electricity to power nearly 30,000 households. Napaimute's power needs would most likely require no more than 0.02 MW which is sufficient for approximately 200 households.



Hydro-power plant in King Cove

A small hydropower system requires flowing water which is most successful in a hilly or mountainous area. The vertical distance the water falls (otherwise know as "head") and the flow volume are the determining factors for how much power can be obtained from the site. If Napainmule determines that there is a site feasible for a small hydropower system, state and federal agencies need to be contacted regarding permitting requirements.



Photovoltaic/diesel hybrid generator in Lime Village

that detailed knowledge of the wind at a site is known to estimate the performance of a wind energy project.

Solar Power. Solar energy can be used to generate electricity, provide hot water, and to heat, cool, and light buildings. There are many types of solar energy systems available in the market including: photovoltaic (solar cell) systems; passive solar heating, cooling and daylighting systems; concentrating solar power systems; and solar hot water and space heating and cooling systems.

Photovoltaic systems use semiconducting material to absorb solar energy (sunlight) which is converted into electricity. *Concentrating solar power systems* use mirrors to concentrate the sun's heat for electricity generation. *Solar hot water heaters* use the sun to heat either water or a "heat-transfer fluid" which can provide energy-efficient hot water and hot water heat for large sized facilities. *Passive solar and daylighting* focuses on structural design features such as south-facing windows to encourage lower heating costs, natural daylight for lighting, and natural cooling and ventilation.

Alaska Energy Authority recently established a solar power generation system in Lime Village and reports that it is a limited success. They are continuing to upgrade and monitor the system.

Wind Energy. Horizontal or vertical axis wind turbines capture the wind's energy to generate electricity with propeller-like blades mounted on a rotor. Wind turbines can be used for water pumping, communications, or electricity generation if conditions are suitable. It is important

Multipurpose Structure

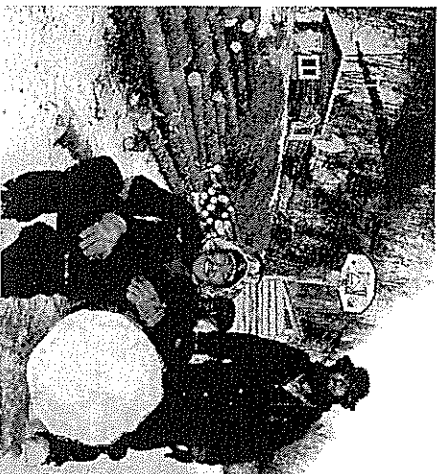
The Traditional Council wants to find the most economical means to meet the service needs of the community. They believe that a multipurpose structure is the most efficient means of accommodating these essential services during the community's initial development. This will alleviate the cost of infrastructure projects; then as the community grows they can move the public facilities to individual structures on an as-needed basis. Facilities that would be necessary to support a small, thriving community include an elder center, community hall, health clinic, school, post office and tribal office.

March 22, 2004 the Council approved a plan for the construction of a 24' X 32' building. Due to the time constraints of a limited construction season, preparation for construction began immediately. A crew was hired to harvest the remainder of the logs needed in an area of TKG land where Napainmute was granted a special community use permit.

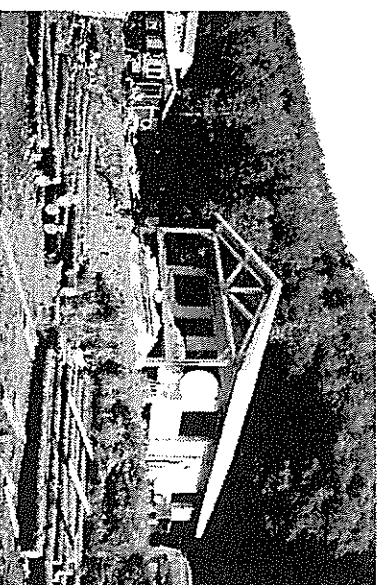
Additional building supplies were trucked via ice road to 10 miles above Chuathbaluk, then hauled the remaining 10 miles to Napainmute by snow machine.

It is the Council's goal to have this building useable (completed or nearly complete) for the Tribal Gathering in July 2004. In general, the building will be used for employee/public lodging, library (300 books are coming), public phone access, public Internet, and public laundry/shower facilities. It is intended to generate income to sustain maintenance and operating costs and, eventually, as activity in and around Napainmute increases, produce profit.

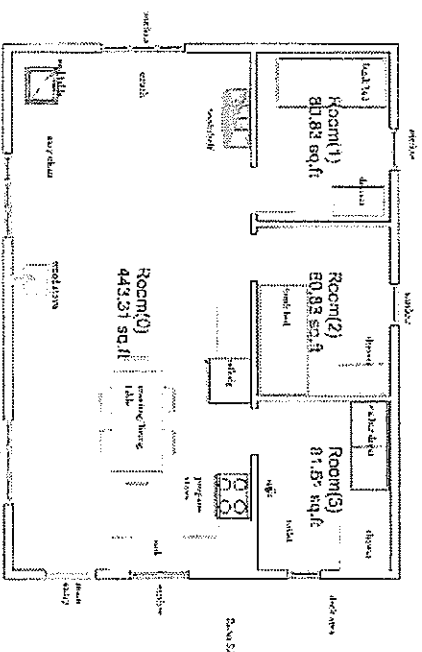
This project, while relatively small, is a big step for Napainmute and one that the Council has considered very carefully.



Kalskog logging crew pose with a large log to be milled into a stringer for the Napainmute Community Building.



Multipurpose structure, one week before completion



24' X 32' Napainmute CMPB (768 sq. ft.) OPTION #3

Layout of multipurpose structure

Longrange Projects

The Traditional Council believes the following projects to be important, but occurring later in the community's development process.

School Contacts

State Department of Education and Early Development
Harry Gambell
(907) 465-2851

Kuspuk School District
Mr. Kim Langton
(907) 675-4250
klangton@ani.kuspuk.org

School

The State Department of Education and Early Development indicated that the Regional Education Attendance Area (REAA) is responsible for the education of all students within their area unless they live in a first-class city. The REAA for the Nepaimute area is the Kuspuk School District. Options for schooling include:

- School district provisions
- Correspondence – provided by Delta, Galena, the Statewide system (that is Alyeska Central School, which may soon be cut by the Governor), or the local school district
- Home schooling

To receive funding from the state for a building and a teacher, the community must have a minimum of 10 students. Once the required student population is established, the community or the district could petition to be placed on the list for building construction. With a qualified person on-site to work with the students, a distance delivery education option could possibly be worked out. There is the possibility of a charter school but there might be a minimum student requirement for that as well. Kuspuk School District officials expressed interest in working with the community to meet the educational needs of Nepaimute.

Post Office

According to the United States Post Office, to obtain postal service, a community needs to consist of 25 families or 75 people and in the case of rural Alaska, must have a regular air transportation network.

Roads

The community should consider the following steps to develop a well thought out road system in Napaimute:

Community Master Plan. The location of traffic generators such as the runway, clinic, school, housing and the post office are important when determining the routing of a new road. In most cases, a community master plan is developed for an existing community and updated as the community grows. In Napaimute's case, new development is planned downstream from the seasonally-used village site and there is no existing infrastructure at the proposed site. Therefore, it is important to plan the location of buildings and other uses with the consideration of access potential.

Transportation Plan/ Feasibility Study. The success of obtaining funding for the design and construction of a road project is typically assisted by the completion of a transportation plan and feasibility study. The goal of a transportation plan is to assure that the improvement and development of village roads allows safe and convenient movement of people and goods throughout the community, to subsistence lands, and developed areas outside the village. Through preliminary research, field reconnaissance, environmental clearances, a photo log and a report, a completed feasibility study can make a project more attractive to funding agencies by reducing total project costs and demonstrating community commitment to the project.

Funding. The primary sources of funding for transportation projects in Alaska are the Bureau of Indian Affairs (BIA) roads program or the State of Alaska's Department of Transportation and Public Facilities (ADOT&PF). Both agencies generally receive applications and are highly competitive. Currently, there is discussion concerning Denali Commission administration of a new rural roads program. Funds would likely still be distributed through BIA and ADOT&PF. Should this program receive congressional and administrative approval, it may provide a source of roads funding for Napaimute.

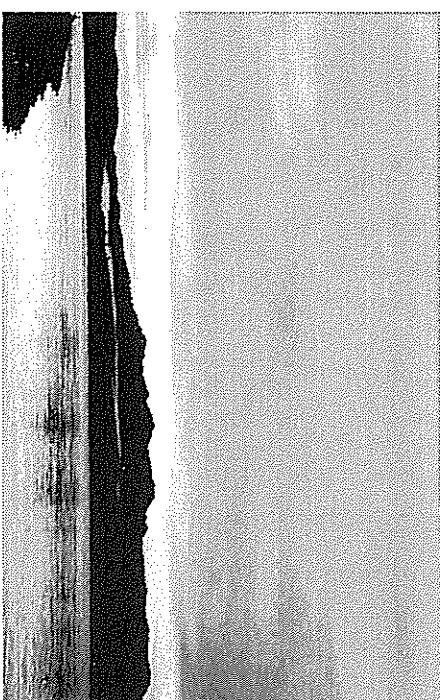
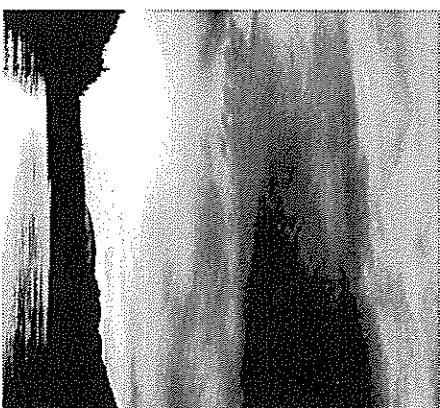
Other funding sources that Napaimute may want to consider for transportation project development include:

- Capital Project Matching Grants through the Alaska Department of Administration,
- Indian Community Development Block Grant Program through HUD,
- the Rasmuson Foundation,
- Community Facilities Guaranteed Loans through the United States Department of Agriculture (USDA) Rural Development,
- the National Cooperative Bank, VSW, and the Denali Commission.

Geotechnical Investigation. Based on alignments proposed in the feasibility study, a geotechnical investigation is the next step in the process. The investigation includes a description of the geology and geography of the area; a field operation plan which includes boring frequencies and depths; proposed equipment utilization; the type, frequency and handling methodology of soil sampling procedures; a laboratory testing plan; geotechnical report, and soil profiles.

Design. The typical final road design includes environmental documentation, survey information, right of way acquisition, hydrology, permitting, utilities, construction plans, clean water consideration, a plan-in-hand review, public hearings, engineer's cost estimate, and design specifications.

Construction. The construction of a road project entails the negotiation of scope and contracts with funding agencies, procuring project materials and equipment and establishing budgets. An important aspect of the construction project is the utilization of local resources to maximize the economic benefit of construction projects within the community.



Appendix A ANCSA Land Conveyance

**Alaska Native Claims Settlement Act
Conveyance of lands
43 U.S.C. § 1613**

(a) **Native villages listed in section 1610 and qualified for land benefits; patents for surface estates; issuance; acreage.** Immediately after selection by a Village Corporation for a Native village listed in section 1610 of this title which the Secretary finds is qualified for land benefits under this chapter, the Secretary shall issue to the Village Corporation a patent to the surface estate in the number of acres shown in the following table:

If the Village had on the 1970 census enumeration date a Native population between	It shall be entitled to a patent to an area of public lands equal to
25 and 99	69,120 acres.
100 and 199	92,160 acres.
200 and 399	115,200 acres.
400 and 599	138,240 acres.
600 or more	161,280 acres.

The lands patented shall be those selected by the Village Corporation pursuant to section 1611(a) of this title. In addition, the Secretary shall issue to the Village Corporation a patent to the surface estate in the lands selected pursuant to section 1611(b) of this title.

(b) **Native villages listed in section 1615 and qualified for land benefits; patents for surface estates; issuance; acreage.** Immediately after selection by any Village Corporation for a Native village listed in section 1615 of this title which the Secretary finds is qualified for land benefits under this chapter, the Secretary shall issue to the Village Corporation a patent to the surface estate to 23,040 acres. The lands patented shall be the lands within the township or townships that enclose the Native village, and any additional lands selected by the Village Corporation from the surrounding townships withdrawn for the Native village by section 1615(a) of this title.

(c) Patent requirements; order of conveyance; vesting date; advisory and appellate functions of Regional Corporations on sales, leases, or other transactions prior to final commitment. Each patent issued pursuant to subsections (a) and (b) of this section shall be subject to the requirements of this subsection. Upon receipt of a patent or patents:

(1) the Village Corporation shall first convey to any Native or non-Native occupant, without consideration, title to the surface estate in the tract occupied as of December 18, 1971 (except that occupancy of tracts located in the Pribilof Islands shall be determined as of the date of initial conveyance of such tracts to the appropriate Village Corporation) as a primary place of residence, or as a primary place of business, or as a subsistence campsite, or as headquarters for reindeer husbandry;

(2) the Village Corporation shall then convey to the occupant, either without consideration or upon payment of an amount not in excess of fair market value, determined as of the date of initial occupancy and without regard to any improvements thereon, title to the surface estate in any tract occupied as of December 18, 1971, by a nonprofit organization;

(3) the Village Corporation shall then convey to any Municipal Corporation in the Native village or to the State in trust for any Municipal Corporation established in the Native village in the future, title to the remaining surface estate of the improved land on which the Native village is located and as much additional land as is necessary for community expansion, and appropriate rights-of-way for public use, and other foreseeable community needs: Provided, That the amount of lands to be transferred to the Municipal Corporation or in trust shall be no less than 1,280 acres unless the Village Corporation and the Municipal Corporation or the State in trust can agree in writing on an amount which is less than one thousand two hundred and eighty acres: Provided further, That any net revenues derived from the sale of surface resources harvested or extracted from lands reconveyed pursuant to this subsection shall be paid to the Village Corporation by the Municipal Corporation or the State in trust: Provided, however, That the word "sale", as used in the preceding sentence, shall not include the utilization of surface resources for governmental purposes by the Municipal Corporation or the State in trust, nor shall it include the issuance of free use permits or other authorization for such purposes;

(4) the Village Corporation shall convey to the Federal Government, State, or to the appropriate Municipal Corporation, title to the surface estate for airport sites, airway beacons, and other navigation aids as such existed on December 18, 1971, together with such additional acreage and/or easements as are necessary to provide related governmental services and to insure safe approaches to airport runways as such airport sites, runways, and other facilities existed as of December 18, 1971; and

(5) for a period of ten years after December 18, 1971, the Regional Corporation shall be afforded the opportunity to review and render advice to the Village Corporations on all land sales, leases or other transactions prior to any final commitment.

There is authorized to be appropriated such sums as may be necessary for the purpose of providing technical assistance to Village Corporations established pursuant to this chapter in order that they may fulfill the reconveyance requirements of this subsection. The Secretary may make funds available as grants to ANCSA or nonprofit corporations that maintain in-house land planning and management capabilities.

(d) **Rule of approximation with respect to acreage limitations.** The Secretary may apply the rule of approximation with respect to the acreage limitations contained in this section.

(e) **Surface and/or subsurface estates to Regional Corporations.** Immediately after selection by a Regional Corporation, the Secretary shall convey to the Regional Corporation title to the surface and/or the subsurface estates, as is appropriate, in the lands selected.

(f) **Patents to Village Corporations for surface estates and to Regional Corporations for subsurface estates; excepted lands; mineral rights; consent of Village Corporations.** When the Secretary issues a patent to a Village Corporation for the surface estate in lands pursuant to subsections (a) and (b) of this section, he shall issue to the Regional Corporation for the region in which the lands are located a patent to the subsurface estate in such lands, except lands located in the National Wildlife Refuge System and lands withdrawn or reserved for national defense purposes, including Naval Petroleum Reserve Numbered 4, for which the rights are provided for in section 1611(a)(1) of this title: Provided, That the right to explore, develop, or remove minerals from the subsurface estate in the lands within the boundaries of any Native village shall be subject to the consent of the Village Corporation.

(g) **Valid existing rights preserved; saving provisions in patents; patentee rights; administration; proportionate rights of patentee.** All conveyances made pursuant to this chapter shall be subject to valid existing rights. Where, prior to patent of any land or minerals under this chapter, a lease, contract, permit, right-of-way, or easement (including a lease issued under section 6(g) of the Alaska Statehood Act) has been issued for the surface or minerals covered under such patent, the patent shall contain provisions making it subject to the lease, contract, permit, right-of-way, or easement, and the right of the lessee, contractee, permittee, or grantee to the complete enjoyment of all rights, privileges, and benefits thereby granted to him. Upon issuance of the patent, the patentee shall succeed and become entitled to any and all interests of the State or the United States as lessor, contractor, permitter, or grantor, in any such leases, contracts, permits, rights-of-way, or easements covering the estate patented, and a lease issued under section 6(g) of the Alaska Statehood Act shall be treated for all purposes as though the patent had been issued to the State. The administration of such lease, contract, permit, right-of-way, or easement shall continue to be by the State or the United States, unless the agency responsible for administration waives administration. In the event that the patent does not cover all of the land embraced within any such lease, contract, permit, right-of-way, or easement, the patentee shall only be entitled to the proportionate amount of the revenues reserved under such lease, contract, permit, right-of-way, or easement by the State or the United States which results from multiplying the total of such revenues by a fraction in which the numerator is the acreage of such lease, contract, permit, right-of-way, or easement which is included in the patent and the denominator is the total acreage contained in such lease, contract, permit, right-of-way, or easement.

(h) **Authorization for land conveyances; surface and subsurface estates.** The Secretary is authorized to withdraw and convey 2 million acres of unreserved and unappropriated public lands located outside the areas withdrawn by sections 1610 and 1615 of this title, and as follows:

(1) The Secretary may withdraw and convey to the appropriate Regional Corporation fee title to existing cemetery sites and historical places. Only title to the surface estate shall be conveyed for lands located in a Wildlife Refuge, when the cemetery or historical site is greater than 640 acres.

(2) The Secretary may withdraw and convey to a Native group that does not qualify as a Native village, if it incorporates under the laws of Alaska, title to the surface estate in not more than 23,040 acres surrounding the Native group's locality. The subsurface estate in such land shall be conveyed to the appropriate Regional Corporation unless the lands are located in a Wildlife Refuge;

(3) The Secretary may withdraw and convey to the Natives residing in Sitka, Kenai, Juneau, and Kodiak, if they incorporate under the laws of Alaska, the surface estate of lands of a similar character in not more than 23,040 acres of land, which shall be located in reasonable proximity to the municipalities. The subsurface estate in such lands shall be conveyed to the appropriate Regional Corporation unless the lands are located in a Wildlife Refuge;

(4) The Secretary shall withdraw only such lands surrounding the Villages and municipalities as are necessary to permit the conveyance authorized by paragraphs (2) and (3) to be planned and effected;

(5) The Secretary may convey to a Native, upon application within two years from December 18, 1971, the surface estate in not to exceed 160 acres of land occupied by the Native as a primary place of residence on August 31, 1971. Determination of occupancy shall be made by the Secretary, whose decision shall be final. The subsurface estate in such lands shall be conveyed to the appropriate Regional Corporations unless the lands are located in a Wildlife Refuge;

(6) The Secretary shall charge against the 2 million acres authorized to be conveyed by this section all allotments approved pursuant to section 1617 of this title during the four years following December 18, 1971. Any minerals reserved by the United States pursuant to the Act of March 8, 1922 (42 Stat. 415), as amended, in a Native Allotment approved pursuant to section 1617 of this title during the period December 18, 1971, through December 18, 1975, shall be conveyed to the appropriate Regional Corporation, unless such lands are located in a Wildlife Refuge or in the Lake Clark areas as provided in section 12 of the Act of January 2, 1976 (Public Law 94-204), as amended.

(7) The Secretary may withdraw and convey lands out of the National Wildlife Refuge System and out of the National Forests, for the purposes set forth in paragraphs (1), (2), (3), and (5) of this subsection; and

(8)(A) Any portion of the 2 million acres not conveyed by this subsection shall be allocated and conveyed to the Regional Corporations on the basis of population.

(B) Such allocation as the Regional Corporation for southeastern Alaska shall receive under this paragraph shall be selected and conveyed from lands that were withdrawn by sections 1615(a) and 1615(d) of this title and not selected by the Village Corporations in southeastern Alaska; except lands on Admiralty Island in the Angoon withdrawal area and, without the consent of the Governor of the State of Alaska or his delegate, lands in the Saxman and Yakutat withdrawal areas are not available for selection or conveyance under this paragraph.

(9) Where the Regional Corporation is precluded from receiving the subsurface estate in lands selected and conveyed pursuant to paragraph (1), (2), (3), or (5), or the retained mineral estate, if any, pursuant to paragraph (6), it may select the subsurface estate in an equal acreage from other lands withdrawn for such selection by the Secretary, or, as to Cook Inlet Region, Incorporated, from those areas designated for in lieu selection in paragraph 1.B.(2) of the document identified in section 12(t) of Public Law 94-204.

Selections made under this paragraph shall be contiguous and in reasonably compact tracts except as separated by unavailable lands, and shall be in whole sections, except where the remaining entitlement is less than six hundred and forty acres. The Secretary is authorized to withdraw, up to two times the Corporation's entitlement, from vacant, unappropriated, and unreserved public lands, including lands solely withdrawn pursuant to section 1616(d)(1) of this title, and the Regional Corporation shall select such entitlement of subsurface estate from such withdrawn lands within ninety days of receipt of notification from the Secretary.

(10) Notwithstanding the provisions of section 1621(h) of this title the Secretary, upon determining that specific lands are available for withdrawal and possible conveyance under this subsection, may withdraw such lands for selection by and conveyance to an appropriate applicant and such withdrawal shall remain until revoked by the Secretary.

(11) For purposes set forth in paragraphs (1), (2), (3), (5), and (6) of this subsection, the term Wildlife Refuges refers to Wildlife Refuges as the boundaries of those refuges exist on December 18, 1971.

Appendix B Power Generation and Distribution Report

NAPIAMUTE POWER GENERATION AND DISTRIBUTION

The proposed power generation and distribution facilities for the community of Napiamute includes power capacity for 8 initial households, one office building and two additional future public or commercial buildings. It is assumed that the power facilities would provide power for an initial population of 25 to 40. There is also a possibility that the community could expand to remote tracts. The power generation and distribution systems should be capable of meeting initial energy requirements as well as allow expansion of the system for future growth at minimal additional expense.

Electrical power facilities would provide distribution subsystems for power plant station service, for the existing village site, and a future village site.

It is unknown whether alternative sources of energy, such as wind or water power may exist in sufficient quantity to provide fuel free production. Alternative sources of energy, if they exist in sufficient dependable quantities, might be a consideration for supplemental energy that could offset fuel costs.

This report outlines general design considerations for a fuel oil fired power plant, an aerial primary power distribution system, and fuel storage. Waste heat (rejected heat) utilization to increase the overall energy efficiency is also an important consideration and the general parameters of a proposed system will be outlined.

POWER PLANT CONFIGURATIONS

Several options exist for power plant configuration. The most conventional configuration for prime power production includes generation adequate to supply the peak demand load with an additional 100% reserve capacity to anticipate failure or need to shut down and maintain equipment while maintaining uninterrupted power. A second option is to provide a single generator with rated capacity equal to the anticipated peak demand. With this option, it is generally necessary to either limit the hours of plant production each day, or to schedule routine outages to provide generator maintenance.

Plant configuration under the first option is typically achieved with one large unit of sufficient size to independently provide peak power demand, and two small units, each with approximately one-half the capacity of the large unit. Generators can be operated in parallel (two or more generators simultaneously producing power on a common power supply bus). This allows generators to be shut down for maintenance while still maintaining full production. Since generators operate most efficiently at their full rated capacity, employing the small units while power demand is reduced, will increase plant efficiency and reduce production costs.

Plant configuration under the second option will greatly reduce initial costs but will result in less plant efficiency (increase fuel usage), require routine outages for plant maintenance and the chance of unexpected outages when unforeseen problems occur. Depending on maximum/minimum load conditions, there can also be increased maintenance and reduced life expectancy of the generator as further explained below.

GENERAL DESIGN CONSIDERATIONS

The generated power should be reliable and of high quality. Optimum plant configuration is a multiple generator plant (three or more units) that would allow operation of each generator at as close to its prime power rating as possible. Switchgear and controls should be capable of allowing full operation of the power plant in either manual or automatic mode. Electronic governors and utility grade protective relaying should be incorporated into the power plant to assure power of high quality and reliability.

These general specifications can be difficult to meet in small prime power plants since most equipment of the size required for the proposed power plant, are generally designed for portable, standby or emergency generation, and are not designed as prime power units. Emergency/standby generator sets accumulate very low hours of operation over years of service and are often replaced long before their accumulated hours of operation warrants. With this in mind, manufacturer's can be more competitive by designing less expensive equipment for emergency/standby use that may not withstand the rigors of continuous operation as required in prime power plants.

An additional challenge in designing a power plant for a small isolated community is the lack of diversity in power demand. Large communities have a highly diversified load which means that the power load becomes fairly uniform with minor daily and seasonal power swings. The "base load" or minimum power demand recorded at large power plants is a relatively high percentage of the peak demand. Base load in power plants serving a small isolated community is a relatively low percentage of the peak power demand. Small community power plants have large daily and seasonal power swings and there is greater challenge in both design and operation of small prime power plants to optimize efficiency. Additionally, load shifts due to motors and appliances switching on and off, that may be insignificant in large utilities, have a significant impact on small power plants. Load shifts in small power plants results in fluctuating line frequency that affects the accuracy of electric clocks. Larger electric motors should be specified with electronic "soft" starters to reduce this impact.

In general, diesel generator sets operate most efficiently at their prime power ratings. There is an additional penalty in increased maintenance costs if generators are operated significantly below their prime power ratings. Carbon precipitates and builds up in the combustion chamber due to reduced combustion chamber temperatures in diesel engines

that operate at low power demand for extended time periods. This carbon will eventually bond to piston rings, combustion chamber surfaces, injector nozzles and valve seats impairing engine performance and leading to premature engine overhaul. The design and operation of the diesel power plant, to maintain optimum loads on each generator, is very critical in decreasing both energy costs and plant maintenance costs. Cummins Northwest, a large supplier of generator sets, reports that as long as their generators maintain a sustained load greater than one-third of its rated load, there is generally no mechanical problem due to carbon build up.

Several options are available for fueling the generators. The most common practice in interior Alaska is to burn #1 fuel oil during the winter and #2 fuel oil in the summer. #2 fuel oil has the advantages that it is less refined and therefore cheaper by the gallon. #2 fuel oil also contains more energy per gallon and has greater lubricity and therefore reduces wear in fuel system components. The cloud point of #2 fuel oil is approximately 8° F, at which point the fuel begins to gel, and is unusable below 0° F. #1 fuel oil has a cloud point of about -62° F but as indicated above, costs more, has less heat value and less lubricity. For purposes of this proposal, it is assumed that both #1 and #2 fuel oil will be stored for annual use.

Estimate of energy consumption

Estimates of annual energy consumption, minimum power demand (base load) and peak power demand (peak load) varies with ambient temperatures, cost of electricity, and average household income. It is assumed that electricity will be used for lighting, mechanical and general power loads and for powering non-heating appliances. It is also assumed that propane cooking appliances, which are generally less costly to operate than electrical appliances in rural Alaska, will be used. Likewise, it is assumed that direct fuel fired water heaters, will be used.

Based on 8 households and 3 public buildings (population of approximately 30), the estimated base load power demand is 10 kilowatts (kW). It is estimated that normal peak winter loads will be approximately 35 to 40 kW. Abnormal peak load conditions could occur at extreme cold temperature conditions with power expected to exceed the normal peak by 20% or a maximum anticipated plant demand of 40 kW to 50 kW.

Fuel demand for the generators would be approximately 13 kilowatt-hours (kWh) per gallon of #2 fuel oil and approximately 11.5 kWh per gallon of #1 fuel oil. Distribution losses are estimated to be 5% to 10% resulting in a further reduction in fuel efficiency of one kWh of delivered (billed) energy per gallon. #2 fuel oil could probably be used five months out of the year. #1 fuel oil and blended #2 fuel oil would be required during the remainder of the year.

Estimating an average load of 15 kW during the five warm months of the year would account for 54,000 kWh of billed energy during this period. During this season, estimated fuel consumption is 4200 gallons of #2 fuel oil. During the remaining seven cold months of the year, total energy consumption is estimated at 126,000 kWh, for an average demand of 25 kW. Estimated consumption of #1 fuel during the seven cold months, is 11,000 gallons.

The above energy consumption estimate is based on consumption of larger more diverse communities, scaled to the population of Napainute. Energy consumption could vary considerably depending on the collective habits of the population. In such a limited population, a reasonable mode of operation might allow operation of the plant for limited hours during the day with the plant shut down each night.

FUEL STORAGE

There is an existing 5,000 gallon tank on site which is filled by pulling a fill hose from the barge and delivering at the top of the tank. It is presumed that this method would also be used to fuel the new tanks.

Based on the above energy estimate, new storage facilities would require a single 5,000 gallon tank for #2 fuel oil storage and a 15,000 gallon tank for #1 fuel oil storage. Reiterating the above comment that energy consumption for this size of community is difficult to predict, smaller fuel storage of #1 fuel might initially be provided. Additional tanks could be provided in the future as the need arises.

Typically a community fuel storage facility would require a spill retention dike and liner. For this size of facility, however, double wall tanks are possibly be more economical. Current environmental statutes would need to be investigated to determine whether common spill retention would be required and if there is a statutory requirement for a spill prevention plan to be in place prior to operation.

POWER PLANT DESIGN (MULTIPLE GENERATOR SETS)

As stated above, base power load for the community would be approximately 10 kW and anticipated peak load would be 40 kW. Average summer and winter demands are estimated at 15 kW and 25 kW respectively. Average estimated demand throughout the year is 21 kW.

An optimum power plant configuration for continuous operation, to accommodate both summer and winter loads, would require three generator sets. Two smaller units would each be sized at 20 kW or about twice the base load. A single large unit with 40 kW prime power rating would provide peak winter load. Each unit would also be provided with a standby rating which would allow the generator to operate for brief periods of time beyond its standby rating. This would allow a unit to be operated at close to its prime power rating before bringing an additional unit on line. Power swings could be handled by the unit within its standby capability without a resultant power outage due to generator overload.

The preliminary plan, as shown on the drawings, indicates units generating at 480 volt delta (or 480 volt ungrounded wye), 3-wire. Plant grounding, which would consist of multiple ground rods interconnected by a buried perimeter ground conductor ring and/or grid system, would connect all equipment frames, steel building members, foundation reinforcement, station service neutral and distribution system neutral. Power for power plant station service and for the village distribution system would be derived from substation transformers with delta connected primary coils and grounded wye connected secondary coils. This configuration would isolate and protect the generators from high ground currents that may result from faults or lightning strikes occurring in the distribution system. The power plant would be further protected by lightning arrestors connected to the distribution at the power plant.

Fuel would be maintained to the units with a day tank supplied by duplex, automatic transfer pumps, housed inside the power plant. The transfer pumps would deliver fuel from outside storage tanks to inside day tank. A 25 gallon day tank would provide approximately 10 hours of fuel at peak winter loads.

With location of the power plant proximal to residences, the units should be specified with "super critical" or "hospital grade" mufflers. Such mufflers provide 25 dbA to 45 dbA sound attenuation throughout the audible spectrum. Super critical grade mufflers as well as good quality thermal/acoustical building insulation will minimize the annoyance of the constant drone of the power plant.

Drawings, sheets E1 and E2 illustrate a basic power plant layout. A 32' x 46' building would provide adequate space for the initial power plant with an additional bay for a future generator set to support community growth. The size of the proposed generator room would also allow for existing units to be replaced with larger units as required to accommodate growth.

The generator sets should be specified with automatic paralleling capability and with programmable controls that allow units to automatically start up, synchronize with the other unit(s) and be closed on line and share power isochronously (equally). Electronic governors should be specified with load sharing capability and with automatic quartz frequency controllers that would automatically compensate for rises and falls in frequency, above and below 60 Hertz (Hz), and would continuously adjust engine speed to maintain precise bus time control. Such controls would allow the units to maintain proper speed and bus frequency without the need for continual operator intervention.

PROTECTIVE RELAYING (MULTIPLE GENERATOR SETS)

An important consideration is the provision of protective devices that not only protect the valuable equipment in the power plant but also assure delivery of power of satisfactory quality.

Drawing 1/E1 shows recommended protective relays and devices to safeguard the generators and other power plant equipment, and to mitigate abnormal situations that would result in delivery of substandard power quality. In the past, such devices were generally stand-alone, single feature relays and controls. Today, most manufacturers of utility grade protective devices have combined the various devices into single, multipurpose modules at a substantial reduction in cost.

The plan shows unitized switchgear in a separate control room. In this configuration, engine controls, voltage regulators, protective devices and unit circuit breakers are installed in each switch section. This configuration allows greater ease of operator monitoring and intervention. It also allows more flexibility in specifying controls and protective relaying to meet a higher standard of quality. This comes however at higher initial cost. Since it is typical for small generators to be provided with unit mounted engine control, electronic governor, voltage regulator, automatic paralleling and protective relaying, a significant savings would be realized by incorporating all of these controls as unit mounted devices and eliminate the free standing unit switchgear. This would also decrease the size required for the power plant building.

POWER PLANT DESIGN (SINGLE GENERATOR SET)

Several options exist for a single generator power plant. The generator can either be housed inside of a lighted and heated walk-in enclosure or the generator can be specified to include an insulated, self-contained enclosure supplied by the manufacturer. Such self-contained enclosures are typically referred to as a "quiet side" enclosures with thermal/acoustical insulation to maintain wintertime operability. A single generator in a quiet side enclosure is the least initial cost but also allows the least flexibility for future growth. The walk-in enclosure could be constructed large enough to allow adding additional generators as the community grows allowing maximum flexibility with the added cost of the building.

Whether installed in a walk-in enclosure or in a "quiet side" enclosure, the generator would be typically specified with unit mounted generator controls that would include unit circuit breaker, electronic governor, engine controller, shut-downs, instrumentation and protective relays. Engine heater, batteries, battery charger, exhaust system and day tank are also provided in the package.

Operation of a single generator plant would require routine shutdown for maintenance. If a daily operation schedule was incorporated, plant maintenance could be performed at night when the generators are shut down, without unexpected outages or the requirement of public announcements for such outages.

With community growth, there will probably be greater expectation of uninterrupted power and consideration would have to be given to provide additional generators. It would also be necessary to provide generator paralleling equipment so generators could be connected to line without interrupting power.

METERING

Monitoring power plant efficiency has become a requirement in order to participate in public programs such as Power Cost Equalization (PCE). Recorded power plant efficiency is also an important reporting tool if the community competes in grant acquisition for facilities upgrades. In order to determine power plant efficiency, energy produced at the plant needs to be compared with total energy delivered (billed energy). This calculation requires a combination of billing meters at each service and meters in the power plant that measure energy produced. A combination wall-hour and demand metering registers should be provided to monitor the production of each generator set and the delivery of power at each feeder. The specification of this metering should follow the requirements the Alaska Energy Authority, but would employ either electronic power monitors or simpler, less expensive wall-hour meters with demand registers.

WASTE HEAT UTILIZATION

Of the total fuel energy burned in the combustion chambers of the generator sets, approximately 1/3 is converted to mechanical energy for turning the generator, 1/3 is heat rejected in the engine jacket cooling water, and the final 1/3 is heat rejected in exhaust gasses. Utilization of rejected heat (waste heat) is generally worth consideration in a multiple power plant configuration with continuous power production and if the power plant location is near community buildings. A second option for waste heat utilization is to provide heat to warm stored fuel oil during the high demand winter months. Heating stored fuel oil would allow the year around use of a lower grade (#2) fuel oil with a resulting savings in energy costs.

A schematic waste heat system is shown in drawing 2/E2. This system utilizes a single heat exchanger that cools all three units. The unit radiators are isolated from the generators and are inter-connected by common supply and return manifolds from the heat exchanger. A thermostatically operated, 3-port valve bypasses coolant flow to the radiators if coolant temperature exceeds a high set-point temperature. Radiator cooling fans are powered by electric motors and operated by thermostats connected to the coolant bypass manifolds. In the event that the heat exchanger requires service, the waste heat manifolds can be isolated and valves in radiator bypass lines can allow each unit to be cooled directly by the unit radiator.

The consideration in the proposed waste heat system is to capture only the rejected cooling water heat. It is also possible to capture rejected exhaust heat by installing waste heat mufflers. The specification of waste heat mufflers is very critical however because excessive reduction of exhaust heat will result in precipitation and build up of soot in the muffler. This will necessitate frequent maintenance and is probably the reason that this form of waste heat recovery is not typically employed.

It is important that the heating systems of buildings intending to utilize waste heat, be designed around this use. The quality (glycol temperature) of hydronic heat delivered through waste heat systems is typically lower than that produced by local boilers. To successfully implement utilization of waste heat, buildings need to be designed with additional fin tube to utilize the lower temperature glycol. With this in mind, the set-point temperature of boilers can be adjusted below the delivery temperature of the district heat

and therefore will only be called upon to supplement additional heat demand beyond that which the waste heat system can deliver. Assuming waste heat could be recovered and delivered at 30% efficiency, an estimated 1,200 to 1,500 gallons of fuel oil would be saved annually.

AUTOMATIC OIL MAINTENANCE SYSTEM

Several manufacturers produce systems that continually monitor oil level in engine crankcases with an electronic level sensing probe. As an engine consumes oil, the automatic system incrementally replenishes the oil to maintain proper level.

These systems are also programmed for an automatic oil change interval. Once set, the system periodically pumps out an incremental quantity of crankcase oil, injects the used oil into the fuel supply line, and replenishes the crankcase with an equal quantity of fresh oil. This system maintains proper crankcase level without operator intervention, alleviates the need to shut down the generator for oil changes, maintains a constant oil quality in the engine, and alleviates the need for storage and disposal of waste oil.

DISTRIBUTION SYSTEM

The preliminary plan calls for a 12.47 kilovolt (kV), wye connected distribution system. Although power requirements for a community of this size would allow distribution at a lower voltage, equipment for lower voltage systems that once were common place, is now difficult and generally more expensive to obtain. Higher voltage systems allow the use of smaller conductor size, lighter weight systems, contribute to higher distribution efficiency, and greater ease in expanding the system.

Although underground distribution systems have increased in popularity over the years due to increased reliability and reduced relative costs of underground conductor, an aerial system would be generally be less costly to build and maintain. Consideration of either underground or aerial power lines should be based on the availability of construction equipment in the community and on soil conditions.

An aerial system would generally require a drilling rig. If a drilling rig is not available in the village, there is considerable cost in mobilization. If a backhoe or other trenching equipment is available, and soil conditions are generally good, a buried system may be less expensive.

Two each, three-phase, pole mounted, transformers located outside of the power plant, converts the 480 volt delta, plant generated power, to 12.47 kV grounded wye, 4-wire, distributed power. The preliminary plan provides two distribution feeders, #1 and #2. Initially, Feeder #2 would provide backup (redundancy) for Feeder #1 via a normally open switch between the two feeders. Feeder #2 would eventually serve the future community site. A normally open switch between the two feeders would allow either feeder to be connected to the other in the event of a failure.

CONSTRUCTION COST ESTIMATE (MULTIPLE GENERATOR POWER PLANT)

A scale of magnitude construction cost estimate for the power facilities, including a single-story building that is approximately 32 feet by 48 feet with generators, utilized switchgear, ancillary equipment and distribution system per the above proposal is \$1,400,000

Costs of the distribution system are estimated based on serving the existing village site including the installation of 10 secondary services. It is assumed the initial system will be approximately one mile in length to serve the initial village site. The cost estimate also includes the installation of 10 secondary services.

The itemization below includes materials and equipment, delivered and installed under construction contract. These costs may be significantly reduced if the project is completed by force account.

COST ESTIMATE

Refer to attached spread sheet outlining costs of various power plant options.

Appendix C Alaska Homestead Act Regulations

AS 38.09.010. Designation of Land for Homestead Entry.

- (a) The commissioner shall designate and make available for homestead entry state land, including, after consulting with the Board of Agriculture and Conservation (AS 03.09.010), land classified for agricultural use. State land made available for homestead entry under this chapter shall be distributed throughout the state.
- (b) The commissioner shall complete a rectangular survey grid of homestead entry state land under AS 38.04.045 before disposing of state land for homestead entry. A homestead entry parcel shall be established in aliquot parts of a surveyed section or as lots or tracts that are fractions of aliquot parts of a surveyed section. The commissioner shall ensure practical access to each homestead entry parcel but the commissioner may waive the rectangular survey grid if no more than one conveyance is made for each section within a township.
- (c) Notice of the designation and offering of land for homestead entry shall be given by the commissioner under AS 38.05.045.
- (d) Land designated for homestead entry is not subject to a preference right under AS 38.05.
- (e) The commissioner shall prescribe a homestead entry procedure for each area designated under (a) of this section. The homestead entry procedure shall establish
 - (1) the minimum distance between homestead entries in the area;
 - (2) the dimensions, configuration, orientation, or other design requirements for a homestead entry in the area;
 - (3) a description of land within the area that may not be included in a homestead entry;
 - (4) a requirement that a landmark, monument, or other point be used as a point of reference for the measurement of distances within an area;
 - (5) a specification of the type of stakes to be used to mark the corners of a homestead entry;
 - (6) the time within which a homestead entry must be staked;
 - (f) The commissioner shall establish the maximum size of a homestead entry that may be selected in each area designated under (a) of this section except that the commissioner may not permit an entry on more than
 - (1) 160 acres of land classified for agricultural use; or
 - (2) 40 acres of land not classified for agricultural use.
 - (g) The commissioner may limit the number of persons permitted to obtain homestead entries within an area designated under (a) of this section by a lottery of qualified applicants.

AS 38.09.020. Homestead Entry Permits.

- (a) A homestead entry permit entitles an applicant to enter land within an area designated under AS 38.09.010 and to survey, occupy, and improve the land in order to qualify for a patent under this chapter.

(b) An applicant for a homestead entry permit shall personally stake the corners and flag the boundaries of the land entered under this chapter and shall personally file with the commissioner a description of the land entered. A homestead entry shall be described by aliquot parts unless otherwise permitted by the commissioner. The commissioner may require the applicant to establish a deposit for the costs of survey before issuing the homestead entry permit.

AS 38.09.030. Qualification for Homestead Entry.

- (a) An applicant for a homestead entry permit shall
 - (1) submit proof acceptable to the commissioner that the applicant is at least 18 years of age and has been a resident of the state for not less than one year immediately before the date of application;
 - (2) pay a fee of \$5 per acre according to the description provided by the applicant if the entry is on land classified agricultural, or \$10 per acre if the entry is on land not classified agricultural;
 - (3) agree to comply with the requirements of AS 38.09.050 ;
 - (4) certify that the corners of the land entered have been staked and the boundaries have been flagged;
 - (5) assume full responsibility for the accuracy of the description of the land filed with the commissioner under AS 38.09.020 (b).
- (b) Except as provided in (c) of this section, an applicant may not hold more than one homestead entry permit at one time and may not receive a patent to more than one homestead entry in a lifetime.
- (c) The homestead entry permit may not be assigned, conveyed, or in any manner transferred except
 - (1) by testate or intestate succession;
 - (2) to a spouse during marriage;
 - (3) by order of a court as part of a divorce settlement;
 - (4) to either a member of the immediate family or a grantee of the applicant in the case of an extreme emergency or illness which disables the applicant; or
 - (5) after the approval of the commissioner, by an exchange between parties in the same homestead area.

AS 38.09.040. Revocation of Entry Permits.

- (a) A homestead entry permit may be revoked by the commissioner for a substantial breach of the permit conditions or the requirements of this chapter, including
 - (1) an assignment, conveyance, or transfer of the permit not authorized under AS 38.09.030 (c);
 - (2) failure of the permit holder to submit an aliquot parts description of the homestead entry or, a plat of survey where the commissioner waived the requirement of a rectangular survey grid to the commissioner within five years after the issuance of the permit;
 - (3) [Repealed, Sec. 38 ch 91 SLA 1997].
 - (4) failure to brush the boundaries of the land not described by aliquot parts or as a lot of record within 90 days after issuance of the homestead entry permit;

- (5) failure to clear and either put into production or prepare for cultivation either 25 percent of the land classified for agricultural use or 50 percent of the cropland soils, whichever is less, within five years after the issuance of the permit.
- (b) [Repealed, Sec. 20 ch 75 SLA 1987].
- (c) If a homestead entry permit is revoked under (a) of this section, improvements or personal property upon the land shall be managed under AS 38.05.090 and the state land remains available for homestead entry under this chapter

AS 38.09.050. Issuance of Patent.

- (a) The commissioner shall issue a patent to homestead entry land if the permit holder
 - (1) resides and lives on the homestead entry land for not less than 25 months within five years after the issuance of the homestead entry permit;
 - (2) submits an aliquot parts description or completes an approved survey of the land in an area where the commissioner waives the rectangular survey grid within five years after the issuance of the permit;
 - (3) [Repealed, Sec. 38 ch 91 SLA 1997].
 - (4) brushes the boundaries of the land not described by aliquot parts or as a lot of record within 90 days after the issuance of the permit;
 - (5) clears and either puts into production or prepares for cultivation either 25 percent of the land classified for agricultural use or 50 percent of the cropland soils, whichever is less, within five years after issuance of the permit.
 - (b) Nothing in this chapter prohibits a homestead entry permit holder from residing in a temporary dwelling on the homestead.
 - (c) The commissioner may reserve or exclude from a patent easements or rights-of-way for roads, trails, trap lines, public access ways, utility corridors, and transportation facilities.
 - (d) [Repealed, Sec. 38 ch 91 SLA 1997].
 - (e) [Repealed, Sec. 38 ch 91 SLA 1997].

AS 38.09.060. Marking Boundaries.

If it is impractical to brush the boundaries of a homestead entry, an applicant shall flag the boundaries.

AS 38.09.070. Priority of Applications.

The commissioner shall issue a homestead entry permit to the first applicant for land to comply with AS 38.09.020 (b).

AS 38.09.090. Purchase.

(a) If an applicant complies with the requirements of AS 38.09.050(a)(2), (4), and (5) and pays to the commissioner an amount equal to five percent of the fair market value within two years of the issuance of an entry permit, an applicant may purchase the land under AS 38.05.065. The purchase price is the fair market value of the land at the issuance of the entry permit as determined by the commissioner.

(b) An applicant who complies with AS 38.09.050 (a) (2), (4), and (5), and who tenders the commissioner an amount equal to five percent of the present fair market value of the land within five years of the issuance of the permit may purchase the land under AS 38.05.065. The purchase price is the fair market value of the land at the time of the purchase.

AS 38.09.100. Lessees of Remote Parcels.

(a) A lessee of a remote parcel under former AS 38.05.077 may elect to obtain title to the remote parcel under AS 38.09.050. If a lessee of a remote parcel elects to obtain title under AS 38.09.050, July 28, 1983, shall be considered the date of the issuance of the homestead entry permit.

(b) Except as provided in (a) of this section, nothing in this chapter affects the rights and obligations of lessees of remote parcels under former AS 38.05.077.

(c) Notwithstanding the provisions of former AS 38.05.077 and 38.05.078, the heirs or devisees of a decedent lessee of a remote parcel may sell their interest in the lease of the remote parcel. The sellers shall notify the commissioner of the sale.

AS 38.09.105. Removal of Conditions On Remote Parcel and Homestead Entry Land.

(a) The commissioner may not include the conditions of former AS 38.05.078(d) in a remote parcel purchase contract issued on or after July 1, 1997.

(b) The commissioner shall amend a remote parcel or homestead entry land purchase contract or patent issued before July 1, 1997 to remove the conditions of former AS 38.05.078 (d) or former AS 38.09.050 (e) if the holder of the purchase contract or patent

(1) requests the amendment;

(2) pays the reasonable administrative costs of the amendment as determined by the commissioner; and

(3) pays the difference, as established by the commissioner, between the land's fair market value before the amendment and the estimated fair market value after the amendment.

AS 38.09.900. Definitions.

In this chapter

(1) "brush" means to clear a swath along the boundary lines of a homestead entry so that the boundary lines may be identified from the ground;

(2) "commissioner" means the commissioner of natural resources;

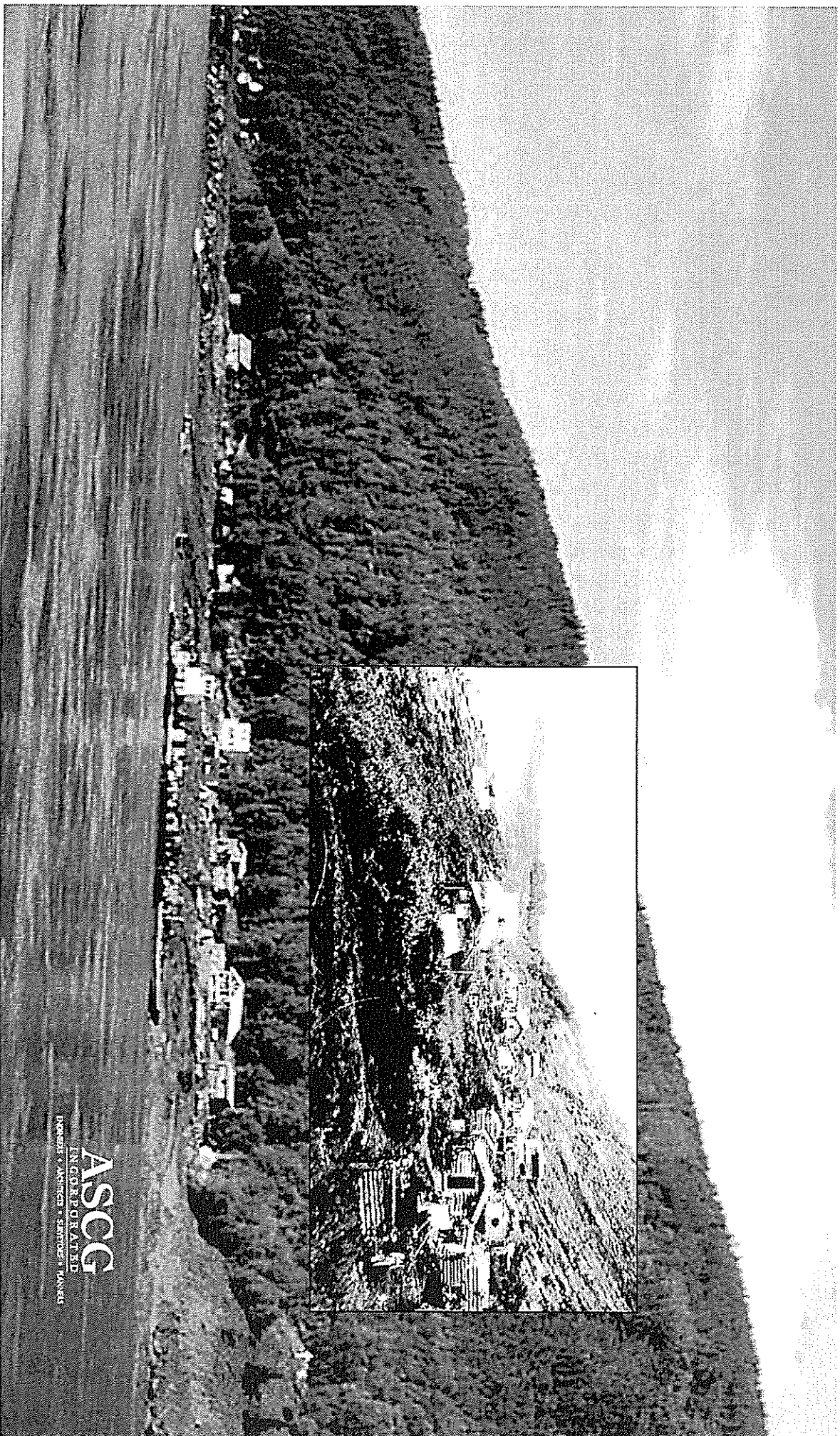
(3) [Repealed, Sec. 38 ch 91 SLA 1997].

(4) [Repealed, Sec. 38 ch 91 SLA 1997].

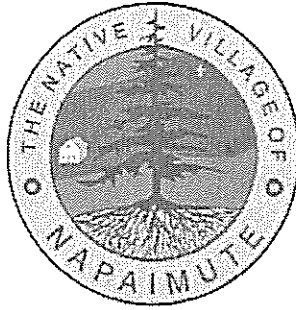
(5) "resident" means an individual who has resided in the state for one year, is a U.S. citizen and does not claim residence in another state, and shows by all attending circumstances an intent to make this state the individual's permanent residence.

Appendix D Bibliography

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NAPAIMUTE'S FOREST MANAGEMENT PLAN (SEPTEMBER 2013)

Purpose And Need For A Management Plan

This management plan was written to guide the Native Village of Napaimute's (NVN) timber program towards meeting the following objectives: 1) improving the health of the region's forests while 2) providing employment for local residents.

What is forest health exactly? Alaska forest health specialists with the U.S. Forest Service FS Health Protection program define a healthy forest as *"a condition wherein a forest has the capacity across the landscape for renewal, for recovery from a wide range of disturbances, and for retention of its ecology and resiliency while meeting current and future needs of people for desired levels of values, uses, products and services."* (USDA 2010)

The Yupik word *Napaimute* means "forest people", and the people of Napaimute strive to live in harmony with the forest and all the biota that inhabits the region's forests, including the waters that flow through the surrounding timbered and tundra landscapes.

This forest management plan is part of a process that began in 2005 when Napaimute's Director of Operations began looking closer at the condition of the timber stands surrounding the village. That same year, a forester with National Resource Conservation Service (NRCS), Mitch Michaud, visited Napaimute and provided his expertise and assessment of the timber resources on NVN land.

Mr. Michaud's assessment corroborated earlier timber surveys conducted in the Kuskokwim region during the 1960's by the Forest Service - that survey work extending from just downstream of the western end of the Kuskokwim Corporation (TKC) land boundary upstream beyond TKC land to Medfra (but only on five miles of either side of the Kuskokwim River). The survey determined 202,000 acres of productive forested land had merchantable timber, 57 percent of which was greater

than 5 inches in diameter; the average tree age available for harvest was estimated at 122 years (Hammons 1981).

The white spruce trees (*Picea glauca*) at that time were considered to be “relatively defect-free”, with only 2.3% of them being defective. The hardwoods, on the other hand, were noted as having more defects. The surveyors found that the quality of timber improved as one traveled upriver - particularly, as one traveled east of Sleetmute (Hammons 1981).

Forty years later those “relatively defect-free” trees succumbed to old age. In 2009 Mr. Michaud again visited Napaimute and noted that the vast majority of white spruce trees had not only reached maturity, but were over mature and consequently had exhibited heart rot. He recommended that the prudent thing to do was conduct a “salvage” harvest, harvesting the trees while they still had merchantable value as sawlogs or other products.

Figure 1: Heart rot common in many of the trees surrounding the Village of Napaimute.



Napaimute personnel understands that fire plays a natural role of setting back a forest's succession (i.e., the gradual supplanting of one plant community with another - Michigan Forests Forever), but also recognizes that there is a critical need

to provide firewood to the region given the exceptionally high cost of heating fuel as well as employment opportunities. Consequently, Napaimute decided to follow Mr. Michaud's advice and actively manage the local forest to a healthier state while providing regional jobs in an environment where jobs are scarce.

In 2009 a significant windthrow event occurred that knocked over a high proportion of Napaimute's older trees. The openness created by the downed trees coupled with further deterioration of forest health only exposed the remaining standing trees to similar events (timber stands in this part of the state naturally have shallow roots which makes them vulnerable to such storm events). The newly downed trees were highly susceptible to various bark beetle infestations, something that has affected much of the state for many years.

Figure 2: Toppled trees for the 2009 windstorm.



Forest Health Concerns

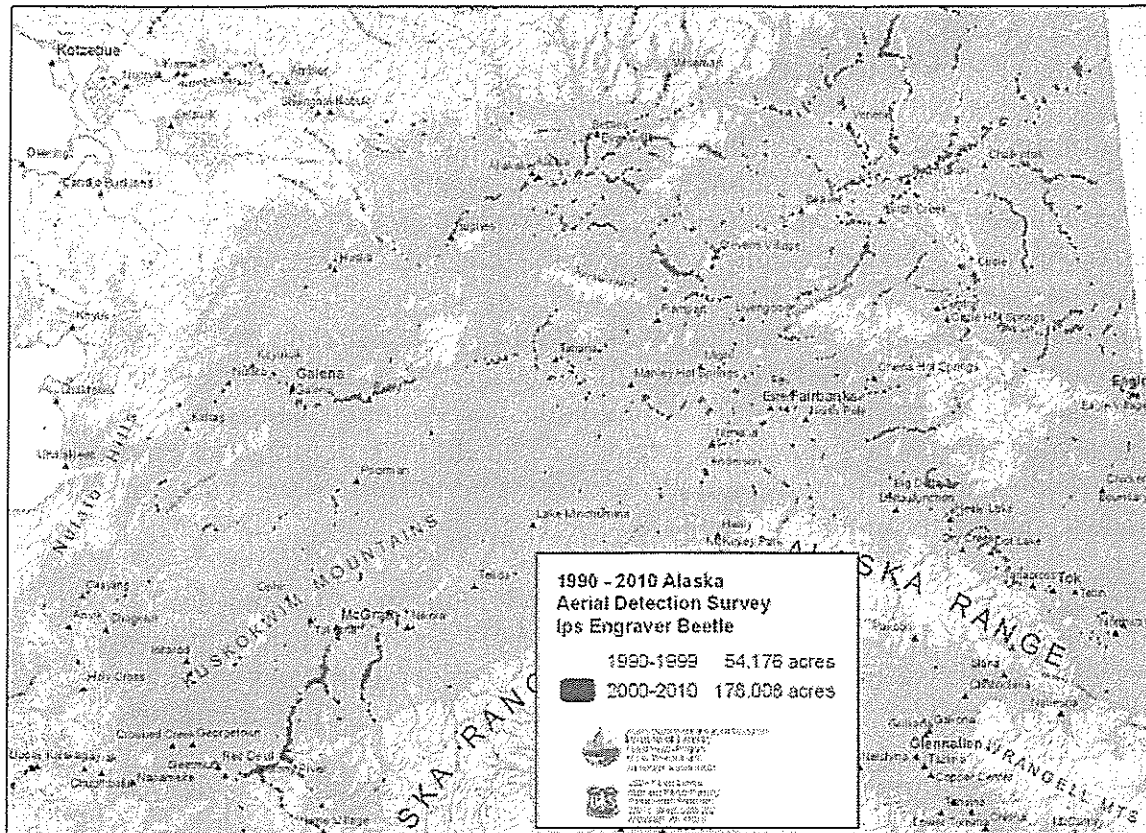
The U.S. Forest Service found that spruce beetles are the most significant causative agent of spruce mortality in south-central and southwestern Alaska (USDA Forest Service 2010). A Forest Health Protection Report states that in 2010, spruce beetle activity state-wide declined by nearly 25% compared to 2009 levels; nearly 78,000 acres of dead spruce were observed during the 2010 aerial flights. However, they noted that overall reductions in South-central Alaska were offset by noteworthy

increases in spruce mortality in Southwest Alaska, and a substantial increase in Southeast (USDA 2010).

But in our corner of southwest Alaska, it appears that spruce beetle activity in the upper Kuskokwim has experienced a decline in 2010. The Kuskokwim outbreak, which began more than 10 years ago, has been in decline for the past several years. The Big River, in the upper Kuskokwim River Valley near McGrath, has had a persistent outbreak of spruce beetle activity over the last ten years - albeit not a very intense one. According to the Forest Service, the amount of activity in that area has not varied very much in intensity or size. During the 2010 Forest Health Protection flights, roughly 1,000 newly infested acres were observed between McGrath and Sleetmute (USDA 2010).

This outbreak is the result of two insects affecting the forests at the same time, the northern spruce engraver(*Ips perturbatus*) and the spruce bark beetle(*Dendroctonus rufipennis*). The Forest Service believes that unless some large-scale disturbance event creates favorable conditions that allow for expansion of beetle activity, beetle numbers should decrease to near normal levels in a few years. One nearby area, however, has sustained significant Ips engraver beetle activity over the past 4-5 years and lies along the Kuskokwim River between McGrath and Sleetmute (USDA Forest Service 2010). That infestation can be seen in the figure below; it's uncertain at this time whether or not this would progress downstream and affect Napaimute in the coming years.

Figure 3. Northern spruce engraver beetle activity in Alaska mapped over two decades (1990-2010). Hans Buchholdt, AK DNR



On the topic of insect infestations, the infestation about to be discussed shouldn't affect the merchantable trees in the region, but is indicative of ecological interactions occurring in the region. This past summer I observed what might be an outbreak of some defoliating leaf miner insect, most likely a moth from the geometrid family. A substantial brown swath was apparent early on in the summer on the island just north of Aniak (D. Cannon personal observation). According to Forest Service forest health specialists, these loopers or inchworms as they're commonly referred to, typically infest alder and willow stands for approximately three years or less; seldom, however, do they cause permanent damage (USDA 2010).

Doig (2013) notes that leaf-mining insects tend to do well when conditions are warm and dry. Although the region has experienced wet summers from 2010-2012, this past summer was relatively dry, and possibly sparked the onset of what was seen in Aniak.

Napaimute's Efforts To Manage The Land

Shortly after the 2009 windthrow event, Napaimute contracted with the NRCS to do an assessment of the timber resources on Napaimute's land. A forest inventory involves a comprehensive accounting of the volume of timber on a given plot of land, including the distribution and size classes and stand stocking rates for individual

species. A stand analysis, on the other hand, is less rigorous and the NRCS considered such an evaluation adequate for Napaimute's purposes.

Staff from the Mid Yukon-Kuskokwim Soil and Water Conservation District was to conduct the analysis in 2011, but unfortunately it never came to fruition. However, a better understanding of the timber resources on Napaimute's land has been gained over the past seven years while working with state, federal and private foresters.

For instance, regional lands subjected to disturbances like fire generally revert back to aspen, birch and willow prior to the eventual later successional stages; after about 80 years, white spruce becomes the dominant species. In the mean time, those hardwoods (i.e., willow, birch and poplar) provide important forage for moose (*Alces alces*) while accessible, but eventually grow beyond the moose's reach; from then on, moose habitat declines. (Doig 2013)

A rough estimate of the vegetation types on NVN land derived from a draft Forest Stewardship Plan currently being written for the Kuskokwim (TKC). Incorporated into TKC's plan is a characterization of the various vegetation types surrounding all middle Kuskokwim River villages resulting from analysis of LandSat imagery.

Figure 1: Vegetation type classification within one mile of Napaimute as analyzed in the draft TKC Forest Stewardship Plan (Doig 2013)

Vegetation Type	%
Needleleaf conifer - Woodland	26
Mixed needleleaf - Open	19
Dwarf shrub	17
Water	20

Classification breakdowns are as follows: a needleleaf forest has at least 75% of total tree cover comprised of coniferous species such as white spruce, black spruce (*Picea mariana*) and tamarack (*Larix laricina*). In a mixed forest, both conifer and hardwood species combined contribute 25% to 75% of the total canopy cover. Woodlands are those stands that have only scattered trees and a canopy cover of between 10 to 25 percent. Closed stands have from 60 to 100 percent crown canopy cover while open stands have from 25 to 60 percent.

Using the above table as a rough guide, approximately 170 acres of NVN land could be considered capable of supporting merchantable timber...most of which consists of white spruce. The dominant trees on NVN land are comprised of what is found in a northern boreal forest (a.k.a. taiga), which includes white spruce, paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), black spruce, and tamarack. Tamarack, also known as larch, were nearly wiped out across the state during the last decade by two intense infestations of the larch sawfly followed by larch beetles (Rozell 2007); however, they can be

found sparsely scattered about in low lying boggy areas throughout the Kuskokwim region.

The Kuskokwim Corporation's estimated woody biomass within five miles of Napaimute is 347,782 cords (Doig 2013), but accessing it is not an easy task. Napaimute's initial goal of improving forest health was centered on the 650 acres of land owned by the village, and over the course of two harvest seasons our logging crew produced well over 1,100 cords of firewood, house logs and sawlogs from 35 acres. We had hoped to remove as much of the decadent timber from our land as possible, but logistics being so difficult with our limited logging equipment and the distance from infrastructure did not lend itself to being efficient, effective or economical. For starters, transporting the finished product by barge is getting extremely expensive so any chance to reduce the shipping distance reduced costs.

Looking More Holistically – Managing For Forest Health At The Regional Level

Although the Native Village of Napaimute is proud of our accomplishments, the logistics of housing and feeding a large crew throughout the summer and winter was taxing...to say the least. However, we stepped back and reassessed our objectives and determined that both could still be met.

In order to accommodate the needs of a crew, it was necessary to locate a good source of timber closer to a permanent village. Since much of our crew resides in Kalskag, we identified a plot several miles below the village on TKC land (another benefit of operating near Kalskag is that the shipping distance of wood product to Bethel is 60 miles shorter than from Napaimute).

Over the past few years, we've been working closely with TKC and their forester, Clare Doig, and during the summer of 2013 began harvesting firewood that will be sold in Bethel and other downriver villages. The amount harvested from 15 acres in 2013 was approximately 300 cords and Mr. Doig estimates that there is between 7,000 and 8,000 cords of harvestable timber from 400 acres in close proximity to Kalskag on TKC land.

The primary objective, then, of improving forest health will now be accomplished on a larger scale and falls in direct alignment with TKC's management objectives. Mr. Doig has completed a draft Forest Stewardship Plan that will eventually guide Corporation managers in the decision making process in regard to their lands that encompass roughly 950,000 acres.

According to TKC's draft plan those 950,000 acres are characterized as follows: *"Approximately 60% of these lands are mapped as forestlands, which are almost evenly split between coniferous forest, mixed deciduous-conifer forest, and hardwood forest. The remaining 40% of TKC lands are comprised of lands typed as tall-low shrub, dwarf shrub, herbaceous, aquatic, non-vascular, and other non-vegetated land cover types."* (Doig 2013)

An excerpt from TKC's Forest Stewardship Plan follows:

Plan Purpose

The purpose of the Forest Stewardship Plan is to develop a strategy for The Kuskokwim Corporation to actively manage their forest and related resources; to keep these lands in a healthy and productive condition in perpetuity; and to increase the economic and environmental benefits of these lands. Historically, there has been relatively little timber harvest activity in this region, however with the increasing interest in utilizing wood as a fuel for heating to replace fossil fuels, there is an increased need for The Kuskokwim Corporation to actively manage these resources.

While meeting landowner objectives, the plan can result in the following benefits:

- ☐ Improve forest stand conditions to protect from fire, insects and disease.*
- ☐ Provide for the identification of forest stands available for future supplies of wood products.*
- ☐ Improve fish, wildlife, soil, and water quality through proper integrated management practices.*
- ☐ Enhance the economic, environmental and cultural qualities of rural areas.*
- ☐ Encourage sound, sustainable timber management practices and silvicultural techniques.*

As mentioned from economic and overall feasibility standpoints, the logistics for accomplishing the second objective was much easier when improving forest health in close proximity to a permanent village, especially when the village is where the employees reside. It is the hope of both Napaimute and TKC to expand efforts and conduct similar forest harvests near other regional villages, thereby providing additional employment opportunities.

A word of caution! U.S. Forest Service forest health specialists note that the northern spruce engraver beetle activity has historically been concentrated in the interior part of the state, mostly along river flood plains and disturbed areas – be they natural or human caused (USDA Forest Service 2010). Other likely locales for the incidence of Ips infestations include those that regularly experience natural soil erosion, ice scour, or sediment deposition (e.g., areas where silt builds up following river break-up); also, areas where tree top breakage from heavy snow loading, **timber harvest**, high wind events, and wildfire occurrence can harbor outbreaks of the spruce engraver beetle (USDA Forest Service 2010).

So, incorporating forestry best management practices intended to minimize the encouragement of any problematic insect population during harvest operations is of the utmost importance, otherwise the work Napaimute does to improve forest health could actually backfire to where our activities could cause more problems than we prevent. Subsequently, our field personnel will do their utmost to comply with the Alaska Forest Resources and Practices Act which states: *All forest clearing operations must be designed to reduce the likelihood of increased insect infestation and disease*

infections that could threaten forest resources (as per Sec. 41.17.082 Article 1 Ch. 17 of 11 AAC 95 June 2007).

In addition, all work will be done in an orderly and workmanlike manner using the methods and practices generally acceptable in the logging industry to the extent practical with special attention to the previously mentioned Forest Resources & Practices Act.

Following are standards incorporated into the agreement between the Native Village of Napaimute and the Kuskokwim Corporation that will minimize or avert negative impacts to the land and waters during harvest operations while operating on TKC land; however, these standards - as a minimum - will also be followed on any other private land, including our own, that the Native Village of Napaimute conducts logging activities (State and other public land will have more stringent riparian standards applied):

All activities will be conducted in such a manner as to prevent or avoid damage to cultural resources, natural features, and wildlife. Operations shall prevent the depositing of sand and gravel, rock, excavated material, stumps, or other debris outside the sale perimeter.

All facilities used or constructed in connection with timber operations will be kept in a neat, clean, safe and sanitary condition.

All lands will be clear of garbage, refuse, logging and human debris, etc., except at permitted or authorized disposal sites.

No fuel shall be stored, no vehicles shall be fueled or serviced, and vehicles leaking fuel, hydraulic fluids, or other pollutants will not be operated below the ordinary high water line (OHW line) of any water body. Vehicles identified to have such leaks will be repaired immediately.

Upon the discovery of any archaeological materials and other cultural resources, including historical and cultural artifacts uncovered during logging operations, a TKC representative will be immediately notified. No cultural resources or archaeological materials, including historical and cultural artifacts, will be disturbed or removed.

Slash and other materials will not be allowed to accumulate on any area to the extent that it will hinder natural or artificial regeneration or provide host material for forest pests, primarily the northern spruce engraver beetle (i.e., Ips).

No harvesting of timber will occur within 33 feet of the Kuskokwim River or its bank (classified as a type IIIB) and between 33 and 66 feet - 50 percent of the white spruce nine inches and greater must remain. (AS41.17.116(c))

Harvest along sloughs and other important fish bearing streams classified as type IIIA will be at a minimum of 66 feet. (AS41.17.116(c))

Excavated materials will be handled in a manner and deposited in a location sufficient to prevent reintroduction into the Kuskokwim.

All bank cuts, slopes, fills, and other exposed earthwork associated with our activities will be stabilized to prevent erosion during and after the activity.

Reforestation efforts will rely on natural generation on mechanically scarified soils. A minimum of two white spruce trees per acre will be left standing with the goal of producing 450 viable seedlings per acre within seven years of the harvest activity.

All precautions and every reasonable effort to prevent and suppress forest fires will be deployed; pulaskis, shovels and bladder bags will be on site.

Not part of TKC's Detailed Plan of Operations, but upon completion of the timber sale agreement, or any other harvest operation that Napaimute conducts in the future, the undersides, tracks and wheels of all equipment will be thoroughly cleaned on site before moved to a new location so not to transport invasive plants or seeds - if present - to other locations.

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TIMBER SALE AGREEMENT

by and between

The Kuskokwim Corporation

and

Napaimute Enterprises LLC

This Timber Sale Agreement (herein, this "Agreement"), is made as of the 20th day of November 2012 (the "Effective Date"), between The Kuskokwim Corporation, an Alaska corporation ("Seller"), and Napaimute Enterprises LLC, an Alaska limited liability company ("Purchaser") (collectively "the Parties").

RECITALS

WHEREAS, Seller owns certain merchantable timber located on property near Lower Kalskag, Alaska; and

WHEREAS, Purchaser is engaged in the business of acquiring timber, for harvesting, and marketing logs, firewood and related products; and

WHEREAS, Seller desires to sell and Purchaser desires to harvest and purchase such timber, subject to the terms and conditions hereof.

NOW THEREFORE, in consideration of the mutual promises and covenants herein contained, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Seller and Purchaser agree as follows:

1. Definitions. For purposes of this Agreement, unless the context clearly indicates otherwise, the following terms shall have the following meanings:

"Cultural Resources" means archaeological, historical or cultural sites and resources.

"Effective Date" is defined in the initial paragraph of this Agreement.

"Environmental Contamination" means contamination or pollution resulting from the Release of a Hazardous Substance.

"Hazardous Substances" means any hazardous substances or materials (as defined in Alaska Statutes 46.03.826 and 46.08.900 and in 42 U.S.C.A. § 9601-9657 (CERCLA) and in 40 C.F.R. part 302, as such statutes and regulations may be amended from time to

time) and any other hazardous, toxic, or radioactive substance, material, pollutant or waste which is or becomes regulated, listed, defined, designated or classified by any governmental authority as a hazardous waste or substance, health hazard or dangerous product. "Hazardous Substance" includes, without limitation, hydrocarbon fuel such as diesel oil and gasoline, lubricating oil, and asbestos and asbestos-containing material.

"Indemnified Parties" means, collectively, The Kuskokwim Corporation, its officers, directors, agents and employees.

"Lands" means the real property owned by Seller, including without limitation, the Sale Area.

"Laws" means all federal, state or local statutes, regulations, rules, ordinances or Permits, orders, and directives, any applicable statutes or regulations, whether in existence on the Effective Date or adopted in the future.

"Merchantable Log" is a Sawlog which contains at least ten (10) board feet net Scribner volume according to the official rules of the Scaling Bureau, or a log of any dimension that is suitable for processing into firewood.

"Merchantable Timber" means all Timber, whether harvested or not, which contains at least one Merchantable Log, or which is Otherwise Merchantable.

"Otherwise Merchantable" means a tree which would have contained at least one Merchantable Log or additional Merchantable Logs, or firewood, if there had not been wastage in tops, chunks or long butts, breakage due to careless felling or other failure to utilize it fully.

"Permits" means any and all permits, permit waivers, permit modifications or amendments, notices, consents, authorizations or approvals, whether public or private, which are required, pursuant to any agreement, contract or property right or pursuant to any Law, for Purchaser to conduct Timber Operations.

"Purchase Price" is defined in Section 4.

"Purchaser" means the Native Village of Napaimute dba: Napaimute Enterprises LLC, an Alaska limited liability company.

"Release" means any spilling, leaking, emitting, discharging, injecting, depositing, disposing, escaping, leaching, migrating, dumping, or other releasing into the environment, whether intentional or unintentional, and includes without limitation any "release" defined in 42 U.S.C. § 9601 and regulations promulgated pursuant to such Law.

"Roads" means all roads, bridges, landings, culverts, and any other similar land-based transportation facilities needed, used or useful to conduct Timber Operations, located in the Sale Area or on the Lands.

"Sale Area" means the real property described as approximately 400 acres located southwest of Lower Kalskag, Alaska, as more particularly described in Exhibit A attached hereto.

"Sawlog" means any log which meets No. 4 sawlog grade or better according to the official rules of the Scaling Bureau.

"Security Deposit" means the funds deposited with Seller as a security deposit.

"Seller" means The Kuskokwim Corporation, an Alaska corporation.

"Slash" means all woody debris resulting from Purchaser's Timber Operations.

"Timber" means all trees live or dead, standing or down, located in the Sale Area or designated for salvage or harvest.

"Timber Operations" means all operations and activities necessary to cut or remove, scale, market and ship Timber, including both on-the-ground and in-the-water operations.

2. Sale of Timber.

(a) Sale of Timber Rights. Subject to the terms and conditions of this Agreement, Seller hereby grants to Purchaser the right to cut, remove and purchase, and Purchaser hereby agrees to cut, with a minimum of waste, remove and purchase, Timber within the Sale Area.

(b) Nonexclusive Rights to Entry and Use. Seller hereby authorizes Purchaser to enter upon and use, during the term of this Agreement, on a nonexclusive basis, the Sale Area and all Roads inside or outside the Sale Area (if any), solely in accordance with the terms of and for the purposes set forth in this Agreement.

(c) Obligation to Fell, Scale, Remove and Pay for All Merchantable Timber. Purchaser shall fell, yard, remove, scale and pay the Purchase Price for all Merchantable Timber that Purchaser removes from the Sale Area.

3. Term of Agreement. The term of Purchaser's rights under this Agreement shall commence as of the Effective Date and shall terminate July 31, 2017, or on the date upon which all Merchantable Timber to be harvested by Purchaser has been harvested and cleanup completed, whichever is earlier. The Parties may, but are not obligated to, extend the term on such terms and conditions as they may agree in writing.

4. Purchase Price.

(a) Stumpage Fee; Payment. The purchase price (the "Purchase Price") for Merchantable Timber shall be:

For all white spruce and birch firewood: Twenty Dollars (\$20.00) per cord.

Payment shall be made as follows:

(1) An initial advance purchase deposit of \$5,000.00 due on signing of this Agreement, and before the start of harvesting operations (but no later than October 1st) in each succeeding year, which will be credited to amounts due upon the annual accounting on July 15th of each year.

(2) Additional advance purchase deposits of \$5,000.00 due on January 15th and April 15th of each year of this Agreement, which will be credited to amounts due upon the annual accounting on July 15th of each year.

(3) Upon the annual accounting on July 15th each year, Purchaser will pay Seller any amounts due after the advance purchase deposits have been credited to the total amount due for sales of firewood and logs for the previous period.

In the event that Purchaser harvests and removes logs that are used as house logs or Sawlogs, Purchaser shall pay to Seller a separate purchase price of Sixty Five Dollars (\$65.00) per thousand board feet net Scribner log scale for those logs.

Every year by July 15th an accounting for the harvest and payment for logs and firewood for the previous twelve (12) months will be documented by Purchaser and provided to Seller for review and acceptance. Purchaser will provide a certified accounting statement detailing the number of cords of firewood and thousands of board feet of logs harvested and sold from the harvest area since the beginning of this Agreement, or since the previous July 15th accounting. Final Timber Sale payment and accounting for such period is due by July 15th of each year.

(b) Security Deposit. Within three (3) business days after the Effective Date, Purchaser shall deposit with Seller the amount of Five Thousand Dollars (\$5,000.00) as security for Purchaser's performance under this Agreement. This amount is in addition to any other advance payments for the purchase of firewood and logs.

(c) Final Payment and Reconciliation. Upon the completion of Timber Operations as soon as reasonably practicable after receipt of a final accounting report, the Parties shall complete a final reconciliation of the Purchase Price and settlement of accounts, including any damages due to Seller pursuant to this Agreement, the cost of completion of any obligations of Purchaser under this Agreement, and all other amounts owing between the Parties. Seller shall assess the Lands within the Sale Area and Purchaser's compliance with this Agreement, including the Purchaser's

obligation to comply with Laws, as well as other cleanup of the Lands reasonably required by Seller. Any portion of the Security Deposit not applied to a breach by Purchaser or offset as provided in subsection (d) shall be applied to the last payment owed by Purchaser on July 15, 2017. Purchaser shall pay any deficiency of the final payment that is not covered by the Security Deposit.

(d) Refund of Security Deposit; Offsets. If, following final inspection, Seller determines that the Timber Operations are in full compliance with the terms of this Agreement, it shall refund the Security Deposit to Purchaser in full by crediting the unexpended amount of such Security Deposit against Purchaser's final payment. In its discretion, Seller may offset against and deduct the amounts from the Security Deposit as set forth in this section, and Purchaser shall immediately replenish any such offset and deduction. Purchaser may not offset against or deduct from payments to be made by Purchaser pursuant to this Agreement against any claims Purchaser may have against Seller.

(e) Seller's Right to Cure. In the event that Purchaser does not, or is unwilling to, perform the additional work necessary to bring the Timber Operations into full and complete compliance, after written notice from Seller and a reasonable opportunity to cure, Seller may perform work necessary to bring the Timber Operations into full and complete compliance using the Security Deposit. If the cost of satisfying Purchaser's obligations under this Agreement exceed the amount of the Security Deposit, Purchaser shall be responsible for paying the additional costs incurred.

(f) Survival. All obligations imposed on the parties under this Section shall survive termination of this Agreement.

5. Security Interest. Purchaser hereby grants and Seller accepts and retains a purchase money security interest in the Merchantable Timber and its products and proceeds as security for payment of all sums due under this Agreement; provided, however, that this security interest will cease to attach to any Merchantable Timber at the time that it is removed from the Sale Area for delivery to a third-party purchaser. On request, Purchaser will execute and deliver to Seller financing statements suitable for recording as evidence of such security interest.

6. Compliance with Laws. Purchaser, at its sole expense, agrees to cut and remove the Merchantable Timber and to conduct its Timber Operations in compliance with all federal, state and local Laws and regulations, including but not limited to those relating to general forestry practices (including the Alaska Forest Resource and Practices Act, A.S. 41.17.010 *et seq.*), fire prevention, safety and environmental protection, and with the terms of any applicable Permits. Purchaser further agrees to comply with all lawful directions given by enforcement officers employed by any government agency. In the event any provision of this Agreement conflicts with Laws, regulations or best management practices, then the more restrictive provisions shall apply.

7. Permits. Purchaser shall be responsible for applying for, obtaining, and maintaining in full force during the term of this Agreement all Permits necessary for

Purchaser to perform the Timber Operations or otherwise perform work under this Agreement.

8. Access: Roads. Purchaser shall have the right to enter the Sale Area during the term of this Agreement for the purpose of performing Timber Operations. Purchaser's right to enter the Sale Area is non-exclusive, provided that neither Seller nor any person claiming a right to enter the Sale Area by reason of Seller's title (other than a government official claiming a right to enter under the law) will interfere with Purchaser's Timber Operations. Seller agrees to grant Purchaser the right to construct Roads across the Lands if such construction is necessary to Purchaser's Timber Operations and with Seller's written consent, provided that: (i) the construction of such Roads is in accordance with the terms of this Agreement and applicable Laws; and (ii) Purchaser pays Seller the same Purchase Price as calculated in Section 4 for all Merchantable Timber felled in construction of such Roads, which Timber shall be accounted for in the reports required by this Agreement.

9. Scaling and Log Accountability.

(a) Scaling Procedures. Purchaser shall arrange for and bear the cost of scaling. All logs produced from the Sale Area shall be measured and accounted for either as firewood (cords) or as logs (sawlogs or houselogs). Two methods of measurement will be used: (1) the computerized print-out from the log processor on the JD 200 LC. Purchaser shall electronically deliver reports to Seller at the end of each month harvesting is in progress; and (2) Purchaser will provide Seller with certified copies of invoices for all firewood and logs (sawlogs or houselogs) harvested from the Timber Sale Area. Purchaser is responsible for accurate accounting, and Seller may require additional documentation in the event that errors in accounting are apparent.

(b) Scaling Rules. Scaling will be performed using the algorithm for measuring cords used by the log processor. A standard cord is 8'x4'x4' which is 128 cubic feet of total space containing approximately 90 cubic feet of solid wood. For logs produced for house logs or Sawlogs, scaling will be according to the Scribner Decimal C Short Log Rule in accordance with the "Official Log Scaling and Grading Rules" of the Log Scaling and Grading Bureaus as developed and authored by the Northwest Log Rules Advisory Group. These logs shall be scaled using the formula for measuring logs resulting in a calculation of net Scribner short log scale volume for each log.

(c) Delivery of Scale Documents. Seller shall be provided a copy of all reports generated by the machine and summary sheets within 15 days after the last day of each month. Scaling documents may be delivered by electronic media, such as Adobe .pdf files, and will be signed by an authorized representative of Purchaser certifying that they are true and accurate reports of the actual volume of Merchantable Timber, including firewood or sawlogs, produced.

(d) Branding Logs. Before being removed from the Timber Sale Area, any logs that are to be rafted or otherwise enter the river, shall be hammer branded on one

end with a log brand registered with the State of Alaska Department of Natural Resources, Division of Forestry. Purchaser is responsible for registering such brands with the Division of Forestry.

(e) Cutting Reports. Purchaser will maintain a record of the volume of all Merchantable Timber cut or otherwise procured from the Sale Area during each month of the term of this Agreement and shall deliver to Seller within fifteen (15) days following the end of each month a report signed by an authorized representative of Purchaser setting out the amount of the Merchantable Timber so cut or procured. Such report shall be based on machine reports per this Section and shall itemize the gross and net scale volume, scaling diameters, log lengths, defect and grade of all logs and the weight for all weighed logs, cords of firewood, or other volume by species.

10. Timber Operations.

(a) Seller's Representative. In order to inspect the conduct of Purchaser's operations, Seller may have its representative(s) on the Lands within the Sale Area while Purchaser is conducting Timber Operations. Seller may provide Purchaser with written requests for any operational changes.

(b) Conduct of Operations and Limitations. Purchaser shall conduct its Timber Operations in such a manner as to prevent or avoid damage to Cultural Resources, natural features, and wildlife. Purchaser shall confine its Timber Operations within the Sale Area, and shall prevent the depositing of sand and gravel, rock, excavating materials, stumps or other debris outside the Sale Area without the written approval of Seller. Purchaser shall not damage Timber outside the Sale Area.

(c) Protection of Cultural and Other Resources. Purchaser shall comply with all federal, state and local Laws and regulations pertaining to Cultural Resources and shall utilize recognized methods and means to prevent disturbance of plants and wildlife within the Lands, and shall not collect or remove any plants except those located within the Sale Area that are necessary to conduct Timber Operations. Purchaser shall provide methods and means to minimize disturbance of Cultural Resources, including historical and cultural artifacts uncovered at the Lands. Upon discovery of any archaeological materials or other Cultural Resources, Purchaser shall immediately notify Seller and any other governmental agencies required to be notified by Law, and cease all Timber Operations in the area of such discovery that could potentially damage or destroy such Cultural Resources. Such notice may be made by telephone or electronic communication but shall be confirmed in writing as soon as practicable. Seller and Purchaser shall promptly arrange for an on-site inspection of such Cultural Resources and, subject to any applicable Laws, endeavor in good faith to develop operating procedures and techniques that will adequately protect such Cultural Resources and meet Purchaser's operational needs. Purchaser shall not collect or remove any Cultural Resources or archaeological materials, including historical and cultural artifacts.

(d) Best Practices. Purchaser shall conduct its Timber Operations in an orderly and workmanlike manner using the methods and practices generally acceptable in the logging industry to the extent not specified herein.

(e) Clean Worksite. Purchaser shall keep the Lands clear of garbage, refuse, logging, and human debris, etc., except at permitted disposal sites or as otherwise authorized under this Agreement. Any tools or material used to conduct Timber Operations, including but not limited to, metal cable, scrap iron, parts and junked vehicles shall be removed from the Lands prior to expiration of the term of this Agreement. Purchaser shall keep all facilities used or constructed in connection with Timber Operations subject to this Agreement in neat, clean, safe and sanitary condition.

(f) Reforestation. Purchaser shall be required, at its expense, to comply with all reforestation requirements for the Sale Area as specified by Laws, including the Forest Resources and Practices Act (A.S. 41.17.010 *et seq.*) and its regulations, as may be amended from time to time. Purchaser shall submit a proposed reforestation plan to Seller for Seller's approval on or before commencing Timber Operations. Purchaser will not allow Slash or other materials to accumulate in any area to the extent that it would hinder natural or artificial regeneration.

(g) Refuse Disposal. Purchaser shall at its expense dispose of all refuse resulting from its use of the Lands, including garbage, wood waste, Hazardous Materials and debris of any kind, in a manner consistent with all applicable federal, state, borough, or local Laws and regulations and Permit conditions. No landfills or solid waste disposal sites will be developed within the Lands.

(h) No Trespass. Purchaser shall not trespass on the lands of any other property owner. Purchaser shall defend and hold the Indemnified Parties harmless from any liability resulting from any trespass committed by Purchaser. No painted tree which marks the boundary of the Sale Area or cutting units nor any blazed tree on any survey line nor any witness tree to any survey corner or monument, shall be severed or removed, nor shall any survey corner, accessory or monument be damaged or destroyed. Any violation of this clause will require the Purchaser to bear the expense of re-establishing such lines, corners, accessories, or monuments.

(i) Fire Suppression. Purchaser shall take all necessary precautions and make every reasonable effort to prevent and suppress forest fires on the Lands. Unless otherwise required by this Agreement or prevented by circumstances beyond Purchaser's control, Purchaser shall place its equipment, employees and contractors at the disposal of any governmental agency that may request assistance in fighting forest fires within or immediately adjacent to the Lands; provided, however, that Seller shall bear all costs and expenses incurred by Purchaser in suppressing fires originating outside the Lands and not caused by Purchaser or arising from Purchaser's Timber Operations. Purchaser shall continue suppression action until relieved by an authorized officer of the agency responsible for fire suppression or by Seller. Purchaser shall comply with all Laws, including without limitation the Forest Resources and Practices Act (A.S.

41.17.010 *et seq.*), and reasonable fire prevention and forestry measures that Seller may specify from time to time.

(j) Felling, Bucking, and Utilization. Insofar as ground conditions, tree lean, and shape of clearing permit, trees must be felled so that their tops do not extend outside of cutting units. Felling should be done in such a manner so as to minimize breakage to the tree, as well as damage to residual timber. Purchaser will ensure that stumps left after Timber Operations are cut as low to the ground as practicable (in order to minimize waste), and in any event, are not higher than twelve (12) inches above the ground on the side of the stump where the elevation of the ground is the highest.

(k) Waste Assessment. Timber will be removed by conventional timber harvesting methods, and conscientious effort will be made to fully utilize and manufacture firewood or logs from trees that are felled, without waste. Notwithstanding anything to the contrary elsewhere in this Agreement, Timber that is otherwise Merchantable or would be Merchantable but for Purchaser's failure to following the utilization standards described herein shall be removed by Purchaser from the Sale Area, at Purchaser's cost.

(l) Erosion Control. Purchaser's Timber Operations shall be conducted in such a manner as to minimize soil erosion. Purchaser shall install and maintain such erosion control devices and take such erosions measures as are necessary to control erosion. Equipment shall not be operated when ground conditions are such that damage will result. Where logging or Road construction is in progress but not completed, unless otherwise agreed, Purchaser shall, before operations cease for any reason, take such actions as may be necessary to control erosion. Such protection shall also be provided for all disturbed, unprotected ground which may be subject to erosion, including Roads and associated fills, tractor roads, skid trails and fire lines.

(m) Environmental Controls. Purchaser shall take suitable measures and provide suitable facilities to prevent pollution, oil and chemical spills, soil erosion and the introduction of any substances or materials into any stream, river, lake or other body of water which may pollute or silt the water or constitute substances or materials deleterious to fish or wildlife. Purchaser shall be responsible for all corrective measures, damages, and costs of corrective measures, required as a result of any pollution, erosion, or siltation, including its effects on adjacent properties. Without limiting the generality of the foregoing, Purchaser shall comply with all environmental Laws, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Resource Conservation and Recovery Act, the Clean Water Act, and all the rules, regulations and orders promulgated thereunder, all as the same have been or may be amended from time to time (e.g., in connection with the handling, processing, storage and disposal of any Hazardous Materials or any other toxic substance).

(n) Road Standards. Purchaser shall be responsible to bring any Roads and or bridges necessary for Timber Operations to current Department of Natural Resources standards. Seller shall not be responsible for Road costs associated with the

Timber harvested under this Agreement. At Seller's direction Purchaser shall close out any existing Roads used, or new Roads constructed under this Agreement, at Purchaser's cost.

(o) Inspection and Approval after Completion. Purchaser shall notify Seller in writing when it has completed its final cleanup operations. Purchaser and Seller shall arrange a mutually convenient date for Seller to inspect the Lands and Purchaser's compliance with the terms of this Agreement. Within ten (10) working days after the inspection, Seller shall give Purchaser a list of the items, if any, which need to be completed in order for the requirements of the Agreement to be satisfied. If Purchaser disagrees with any of the items, Purchaser shall so notify Seller within ten (10) days of receipt of the list. Upon Seller's receipt to Purchaser's notice, Seller and Purchaser shall expeditiously meet and attempt to resolve their disagreement. If no agreement is reached, the matter shall be submitted to dispute resolution according to the terms of this Agreement.

(p) Risk of Loss. Title to and risk of loss of the Timber subject to this Agreement shall pass to Purchaser upon the first payment of the Purchase Price, or upon its severance, whichever occurs first. Purchaser shall assume and shall bear any and all risk of loss, including but not limited to, fire, windstorm, accident or other cause, to and for the Merchantable Timber upon severance thereof.

(q) Removal from Sale Area. Purchaser shall not remove any Merchantable Timber from the Sale Area if Purchaser has received notice from Seller that Purchaser is in default under this Agreement and Purchaser has failed to take reasonable steps to diligently prosecute a cure of such default.

(r) Title upon Termination or Expiration. At the conclusion of Purchaser's logging operations, clean-up and restoration, or upon the expiration of the time for removal, whichever is earlier, all standing and down timber and logs and improvements on the Lands shall become the property of Seller and all rights and licenses of the Purchaser under this Agreement shall terminate.

(s) Plan of Operations. Seller's acceptance of any plan of operations, cleanup plan, fire prevention and control plan, or any other plan submitted by Purchaser hereunder, shall not be deemed to constitute a representation, warranty, or expression of opinion by Seller, whether express or implied, as to the legal sufficiency or ultimate conformity of the plans with applicable Laws or regulations.

(t) Sale of Firewood to Shareholders. Upon written request in the form of an application approved by Seller, Purchaser shall sell Merchantable Timber to shareholders of The Kuskokwim Corporation, in an amount up to five (5) cords per shareholder, at Purchaser's cost, without markup. The Purchase Price set forth in Section 4(a) shall be waived for all such shareholder sales. The application form shall provide that the Merchantable Timber shall be for the shareholder's personal use only and may not be sold or used for commercial purposes. Sales to shareholders shall be accounted for in the reports provided by Purchaser to Seller.

11. Construction Materials. Purchaser acknowledges that Seller does not own rock, sand, gravel or other such construction materials comprising the subsurface estate of the Lands, including within the Sale Area. To the extent that Purchaser deems the extraction or use of such contractions materials to be necessary for the Timber Operations, Purchaser shall obtain the written consent of the subsurface estate owner, and shall indemnify and hold harmless the Indemnified Parties for Purchaser's actions with respect thereto.

12. Seller's Representations and Warranties. Seller represents and warrants to Purchaser as follows:

(a) Authorization. Seller is a corporation in good standing and duly organized under the laws of the State of Alaska. This Agreement has been or will be duly authorized, executed and delivered by Seller, and when so executed and delivered, will be the legal, valid and binding obligations of Seller, enforceable in accordance with its terms. No other consents are required for Seller to execute, deliver and perform this Agreement.

(b) Title. Seller has good and marketable title to the Merchantable Timber, free and clear of all liens and encumbrances. Seller further warrants that it has the right to grant and convey to Purchaser the right to enter the Lands and to remove the Timber within the Sale Area.

(c) Timber. The grant to Purchaser of the right to cut and remove Timber includes a limited license to Purchaser to access the Lands and remove the Timber upon, over and across all existing rights of way and easements to which Seller otherwise may have the right of use and access. Seller makes no warranties as to volume or quality of Timber within the Sale Area.

(d) No Conflict or Violation. Neither the execution and delivery of this Agreement nor the consummation of the transactions contemplated hereby will result in (i) a breach of, or a default under any term or provision of any material contract or agreement to which Seller is bound, or (ii) a violation by Seller of any Laws, order, judgment or injunction, which violation would have a material adverse effect on Seller's ability to consummate the transactions contemplated under this Agreement.

(e) Exclusion of Warranties: Limitations of Liability. (i) Seller makes no and has made no representations as to the present or future conditions of any part of the Lands. Except as otherwise set forth in this Agreement, Purchaser assumes all risk of personal injury or property damage to itself and its employees, agents, contractors and invitees in connection with any of Purchaser's Timber Operations under this Agreement.

(ii) SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO QUANTITY, QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE CONCERNING THE TIMBER. EXCEPT FOR ISSUES

ARISING FROM THE REPRESENTATIONS AND WARRANTIES AND INDEMNITY OBLIGATIONS OF SELLER AS SET FORTH IN THIS AGREEMENT, SELLER SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY DAMAGES ARISING OUT OF OR RELATING TO THE TIMBER OPERATIONS, HARVESTING OR USE OF SUCH TIMBER OR FOR ANY SPECIAL CONSEQUENTIAL OR INCIDENTAL DAMAGES.

(ii) Seller disclaims any right of ownership, and this Agreement does not grant any rights with respect to, the subsurface of the Lands, and Seller makes no representations or warranties with respect thereto.

13. Purchaser's Representations and Warranties. Purchaser represents and warrants to Seller as follows:

(a) Authorization. Purchaser is a limited liability company in good standing and duly organized under the laws of the State of Alaska. This Agreement has been or will be duly authorized, executed and delivered by Purchaser, and when so executed and delivered, will be the legal, valid and binding obligations of Purchaser, enforceable in accordance with its terms. No other consents are required for Purchaser to execute, deliver and perform this Agreement.

(b) No Conflict or Violation. Neither the execution and delivery of this Agreement nor the consummation of the transactions contemplated hereby will result in (i) a breach of, or a default under any term or provision of any material contract or agreement to which Purchaser is bound, or (ii) a violation by Purchaser of any Laws, order, judgment or injunction, which violation would have a material adverse effect on Purchaser's ability to consummate the transactions contemplated under this Agreement.

(c) As-Is Condition. Purchaser has inspected the Sale Area and is fully familiar with the physical condition and location thereof. Purchaser is purchasing the Timber "As Is" and in its current condition.

(d) No Reliance. In entering this Agreement and the transactions contemplated thereby, Purchaser has not been induced by and has not relied upon any representations, warranties or statements, whether express or implied, made by Seller or any agent, employee or representative of Seller which are not expressly set forth in this Agreement.

(e) No Grant of Interest in Lands. Purchaser expressly acknowledges that no interest in the Lands is granted or conveyed by this Agreement.

14. Indemnification.

(a) General Indemnification. Purchaser shall perform all of its obligations and carry on all of its operations and activities entirely at its own risk and responsibility. Purchaser shall indemnify, defend and hold the Indemnified Parties

harmless from and against any and all loss, expense, damage, claim, demand, judgment, fee, charge, lien, liability, action, cause of action or proceedings of any kind whatsoever, whether arising on account of damage to or loss of property, or personal injury, emotional distress or death or for any other cause, arising in any manner directly or indirectly in connection with the performance, activities, operations, errors or omissions of Purchaser, its invitees, contractors, subcontractors or anyone directly or indirectly employed by them under this Agreement, whether the same arises before or after completion of Purchaser's activities or expiration of this Agreement. Nothing herein shall relieve any person from liability as a result of its intent to cause injury or property damage.

(b) Environmental Indemnification. Purchaser shall indemnify, defend and hold the Indemnified Parties harmless for, and will pay to the Indemnified Parties, and waives any cost recovery action against the Indemnified Parties for, the amount of any loss, expense, damage, claim, demand, judgment, fee, charge, lien, liability, action, cause of action or proceedings of any kind whatsoever, including without limitation attorney fees, staff time, and third party consultant fees incurred in reviewing, monitoring and participating in cleanup of Environmental Contamination and lost production during or as a result of cleanup of Environmental Contamination, whether arising on account of damage to or loss of property, or personal injury, emotional distress or death or for any other cause, arising in any manner directly or indirectly in connection with:

(1) Any Hazardous Substances or Environmental Contamination that were present on, at or under the Sale Area or Roads or any property geologically or hydrologically adjoining the Sale Area or Roads at any time on or prior to the time Purchaser vacates the Lands, except to the extent Purchaser can establish that such Hazardous Substances or Environmental Contamination were present or occurred prior to the Effective Date; or

(2) Any Hazardous Substances, wherever located, that were, or were allegedly, generated, transported, stored, treated, Released, or otherwise handled by Purchaser or any person for whose conduct Purchaser is or may be held responsible, at any time on or prior to the time Purchaser vacates the Lands.

(3) Damage to or loss of property, or personal injury, emotional distress or death or for any other cause, arising in any manner directly or indirectly in connection with cleanup of Environmental Contamination for which Purchaser has an indemnity obligation.

(c) Performance of Defense Obligation. Purchaser's obligation of defense shall be performed through counsel, experts and consultants reasonably satisfactory to Seller. Seller may, at its option, and any other Indemnified Party may, at its option and with Seller's consent, at any time employ separate counsel, experts and consultants in any action that is subject to Purchaser's defense obligation, and participate in the defense. Employment of separate counsel, experts and consultants shall be at the employing person's expense unless (a) Purchaser fails to accept the tender of defense or to take such steps, such as employing reasonably requested satisfactory counsel and providing assurance of the ability to provide a sufficient defense, as may be reasonably

satisfactory to the Indemnified Party, or (b) the Indemnified Party has defenses or counterclaims to defeat or lessen the liabilities that are different from or in addition to the defenses and counterclaims available to Purchaser. In either case, the Indemnified Party shall have the right to direct the defense and the expenses shall be borne by Purchaser.

(d) No Release of Responsible Parties. Purchaser may not agree to any settlement of a liability that would impose a liability or obligation on, or restrict the operations of, Seller without Seller's written consent.

(e) Strict Liability. To the extent an Indemnified Party is held strictly liable under any Law relating to Hazardous Substances or Environmental Contamination for any liability for which Purchaser is obligated to indemnify the Indemnified Party, Purchaser's indemnity and defense obligation shall likewise be without regard to fault.

~~15. Insurance. Without limiting Purchaser's indemnification obligations~~ hereunder, Purchaser shall purchase, at its own expense, and maintain in force at all times during the term of this Agreement, the policies of insurance specified in this Section. Where specific limits are shown, they shall be the minimum acceptable limits. All of the insurance policies required by this Agreement shall: (i) be endorsed to provide that such insurance shall apply as primary insurance and that any insurance or self-insurance carried by Seller will be excess only and will not contribute to the insurance required by this Agreement; (ii) be endorsed to name Seller as additional insureds; and (iii) provide for a waiver of subrogation in favor of Seller. All endorsements shall reference this Agreement. All insurance shall be on an occurrence and not a "claims made" basis. At Certificates of insurance must be furnished to Seller at least ten (1) days before Purchaser first commences Timber Operations or use of the Lands. If available, Purchaser's policies must provide for thirty (30) days prior written notice to Seller of cancellation, nonrenewal or material change of the policies. If not available, Purchaser shall give Seller prompt written notice of any cancellation, nonrenewal or material change. Failure to furnish satisfactory evidence of insurance or the lapse of a policy is a material breach of this Agreement. Failure of Seller to demand any insurance certificates or policies or any other evidence of full compliance with the insurance requirements, or Seller's failure to identify any deficiency regarding same shall not be construed as a waiver of Purchaser's obligations to carry and maintain the insurance required under this Agreement. By requiring insurance herein, Seller does not make any representations with respect to the adequacy or sufficiency of such coverage and limits. The policies are:

(a) Workers' compensation, industrial accident and/or USL&H insurance for all its employees engaged in work under this Agreement, including subcontractor's Workers' Compensation Insurance, Industrial Accident and/or USL&H, including Employer's Liability Insurance in accordance with Laws. If there is exposure to injury under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under Laws applicable to maritime employees, or any other federal act, coverage shall be included for such injuries or claims.

(b) Commercial general liability insurance, including Loggers Broad Form insurance with coverage limits not less than Two Million Dollars (\$2,000,000)

combined single limit per occurrence and annual aggregate coverage of Two Million Dollars (\$2,000,000), including fire, premises operations, independent contractors, product/completed operations, broad form property damage, blanket contractual, and personal injury endorsements. Limits may be a combination of primary and excess (umbrella) policy forms.

(c) Comprehensive automobile and aircraft liability insurance, covering all owned, hired, and non-owned vehicles and aircraft with coverage limits not less than Two Million Dollars (\$2,000,000) combined single limit per occurrence bodily injury and property damage.

(d) Logger's property damage liability, broad form with a limit per occurrence of at least One Million Dollars (\$1,000,000).

(e) Pollution liability coverage with coverage limits not less than One Million Dollars (\$1,000,000.00) per occurrence combined single limit for bodily injury, property damage and cleanup expense.

(f) Throughout the period when work is being performed within the Lands and until its final completion of work and acceptance by Seller, in addition to any insurance required by any governmental authority, Purchaser shall maintain, and shall require all of Purchaser's subcontractors performing work whether on or off the Lands (and all other associates performing work on the Lands) to maintain, at a minimum, the insurance described above, in a form and with insurers acceptable to Seller.

16. Taxes and Fees. Purchaser shall be responsible for and agrees to timely pay any and all taxes, including deposits for withholding taxes, license, production, severance and excise taxes, if any, and fees and assessments due to the United States, the State of Alaska, and any local governing body, and any other taxes and contributions required by laws, which become due and payable relating to Purchaser's performance under this Agreement.

17. Liens. Purchaser agrees to keep the Lands, and all of Purchaser's and Seller's interests in the Lands, fully protected against all liens of every character arising from or connected with Purchaser's Timber Operations or other work under this Agreement. Purchaser shall promptly notify Seller of any lien placed on or affecting the Sale Area and obtain the release of any such lien or commence and diligently prosecute such action as is necessary for the removal or avoidance of any such lien. Purchaser shall pay or cause to be paid promptly when due all just claims, debts and charges against Purchaser or its contractors or subcontractors that might become a lien against the Lands, and Purchaser shall not suffer or permit any lien or encumbrance of any kind to be filed against or upon the Lands, irrespective of whether the basis of the lien is a claim against Purchaser or its contractor or subcontractor.

18. Default and Termination.

(a) Events of Default. Any of the following shall be deemed an event of default:

(i) Any material representation or warranty made by party which shall prove to be false in any material respect;

(ii) Either party's failure or refusal to perform, fulfill, or observe any material provision of this Agreement, or either party's breach of any material covenant of this Agreement; or

(iii) If either party shall have a receiver appointed for all or any significant part of its assets, become insolvent, file a petition in bankruptcy or for reorganization, liquidation or relief under any bankruptcy, insolvency or debtor laws, or make an assignment for the benefit of creditors, or if there shall be a petition filed against it in bankruptcy or under insolvency or debtor laws.

(b) Notice of Default. In the event of default, the non-defaulting party will serve written notice on the other that shall state the ground(s) upon which default is alleged and demand a cure. If (i) the default is not cured, or (ii) reasonable steps are not taken to promptly and diligently prosecute a cure within thirty (3) days of such notice, the non-defaulting party may terminate this Agreement by written notice to the other.

(c) Remedies. Nothing herein shall waive any rights to seek damages or other relief available under Laws.

(d) Events upon Termination. Upon termination of this Agreement, each and every claim and right of Purchaser to perform Timber Operations under this Agreement shall immediately cease and terminate. Purchaser shall promptly proceed to vacate the Sale Area and remove all of Purchaser's personal property therefrom.

19. Dispute Resolution. If any dispute or controversy arises out of, in connection with or related to this Agreement, the Parties agree to negotiate in good faith a mutually acceptable resolution. In the event that the Parties cannot reach a mutually acceptable resolution, the Parties agree to first consider resolution of the dispute with the assistance of an impartial mediator, in Anchorage, Alaska. If, after consideration, the Parties do not agree to proceed with mediation, the dispute shall be settled by arbitration in Anchorage, Alaska, by a single arbitrator, in accordance with the rules of the Alaska Revised Uniform Arbitration Act. Judgment upon the award rendered may be entered and enforced in any court having jurisdiction thereof. All parties shall share the cost of the arbitration, except for reasonable attorney fees and costs, which shall be awarded to the prevailing party, as determined in accordance with Alaska Rule of Civil Procedure 82, unless the non-prevailing party's claim or defense was determined by the arbitrator to be frivolous or in bad faith, in which case the arbitrator may award full fees.

20. Shareholder Hire. It is Seller's policy to provide employment opportunities to shareholders and local residents to the maximum extent permitted by

Laws. Purchaser shall make reasonable efforts to provide an employment preference to Seller's qualified shareholders in recruitment, hire and retention.

21. Subcontractors. If Purchaser subcontracts any of the work under this Agreement to any third party, or allows anyone to perform any of such work at Purchaser's request or invitation, Purchaser shall ensure that each such third party complies with the terms and conditions of this Agreement, including without limitation, the insurance requirements. Purchaser will be directly responsible for protecting, defending and holding the Indemnified Parties harmless from any damages sustained by Seller which are caused by such subcontractor(s) or third party(s) if the same has failed to comply with applicable Laws or governmental obligations or carry and maintain the required insurance as set forth herein, or to comply fully with this Agreement.

22. Notices. Any notice, request, demand, statement, request, approval and other communications under this Agreement shall be in writing, and shall be delivered by hand or mailed, first-class, postage prepaid and addressed as follows:

For Seller:

The Kuskokwim Corporation
Attn: Rachel Klein
4300 B Street, Suite 207
Anchorage, AK 99503
Telephone: (907) 243-2944

For Purchaser:

Mr. Mark Leary
Napaimute Enterprises LLC
P.O. Box 1301
Bethel, AK 99599
Telephone: (907) 543-2016

or in each case to any other address as may from time to time be designated by notice from the respective party to the other in writing. Any notice given by mail shall be deemed received on the fifth day after mailing.

23. Waiver of Sovereign Immunity. The Parties acknowledge that Purchaser is a subsidiary business entity of the Tribe. To the extent that Purchaser claims a right to sovereign immunity, by executing and entering into this Agreement, Purchaser hereby expressly and irrevocably grants to Seller a waiver of such claimed sovereign immunity from unconsented suit, arbitration, litigation or judicial or administrative proceeding, and consents to such suit, arbitration, litigation, or judicial or administrative proceeding in the courts or administrative agencies of the State of Alaska, including without limitation any defense, cross-claim or counterclaim asserted against Purchaser, and further consents to any judgment, award or declaration of relief resulting therefrom.

24. Miscellaneous.

(a) Books and Records. Purchaser will keep all complete and accurate books and records with respect to its Timber Operations under this Agreement, and make such books and records available for audit, inspection and copying by Seller. Purchaser shall maintain such books and records for a period of two (2) years after expiration or termination of this Agreement.

(b) Rights and Remedies. All rights and remedies of the Parties are cumulative and are in addition to any other right or remedy allowed at law or in equity.

(c) Binding Effect; Assignment. This Agreement shall be binding upon the respective successors and assigns of the parties hereto. This Agreement may not be assigned by any party without the prior written consent of the other party.

(d) No Waiver. No failure by either Party to insist upon the strict performance by the other of any term, covenant or condition of this Agreement, or to exercise any right or remedy available hereunder, whether upon a breach or otherwise, shall constitute a waiver of any subsequent breach or of such term, covenant or condition.

(e) No Strict Construction. Each Party acknowledges that it has had the opportunity to consult with counsel of its choosing with respect to the preparation and execution of this Agreement and agree that the rule that a contract will be construed against the party drafting it shall not apply to the interpretation or construction of this Agreement.

(f) Force Majeure. Neither party hereto shall be liable for any delay or default in performance hereunder due to any cause beyond its control, its agents or contractors, including but not limited to acts of God, or the public enemy, acts of the federal or state government, floods, wars, fires, storms, labor disputes, weather conditions, interruptions of transportation, freight embargoes, or delays in delivery of material, equipment or service necessary to the performance of any provision hereof whereby performance hereunder is delayed or prevented. Upon the occurrence of any such event, the party affected thereby may suspend operations hereunder after giving written notice to the other party within 15 days of such event and the term of performance is delayed by such event.

(g) Severability of Provisions. In case any one or more of the provisions of this Agreement or any application thereof shall be adjudged invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions hereof and any other application thereof shall not in any way be affected or impaired and shall remain in full force and effect.

(h) Counterparts. This Agreement may be executed in several counterparts and delivered by electronic transmission, each of which shall be deemed an original, and all counterparts shall constitute one and the same document.

(i) Complete Agreement; Modification. This Agreement constitutes the entire agreement between the parties with respect to its subject matter. Any modification or amendment must be made in writing and signed by both parties.

(j) Governing Law. This Agreement shall be governed by and construed in accordance with the substantive law of the State of Alaska.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

SELLER:

The Kuskokwim Corporation

By: 

Its: President/CEO

Date: 11-20-12

PURCHASER:

Napaimute Enterprises LLC

By: _____

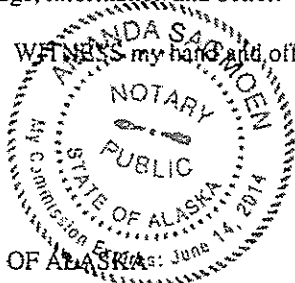
Its: _____

Date: _____

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 20th day of November, 2012, before me, the undersigned Notary Public duly commissioned and sworn, personally appeared MAVER E. CAREY, President/Chief Executive Officer of The Kuskokwim Corporation, 4300 B Street, Suite 207, Anchorage, AK 99503, who being by me first duly sworn, severally declared that she is the person who signed the foregoing document, and verified that the statements contained therein are true, to the best of her knowledge, information and belief.

WITNESS my hand and official seal.




NOTARY PUBLIC - STATE OF ALASKA
My commission Expires: June 14, 2014

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this _____ day of _____, 20____, before me, the undersigned Notary Public duly commissioned and sworn, personally appeared MARK D. LEARY on behalf of Napaimute Enterprises LLC, PO Box 1301, Bethel, AK 99559, who being by me first duly sworn, severally declared that she is the person who signed the foregoing document, and verified that the statements contained therein are true, to the best of her knowledge, information and belief.

WITNESS my hand and official seal.

NOTARY PUBLIC - STATE OF ALASKA
My commission Expires: _____

EXHIBIT A

(1 Harvest Unit Map and 1 Vicinity Map)

Legal Description:

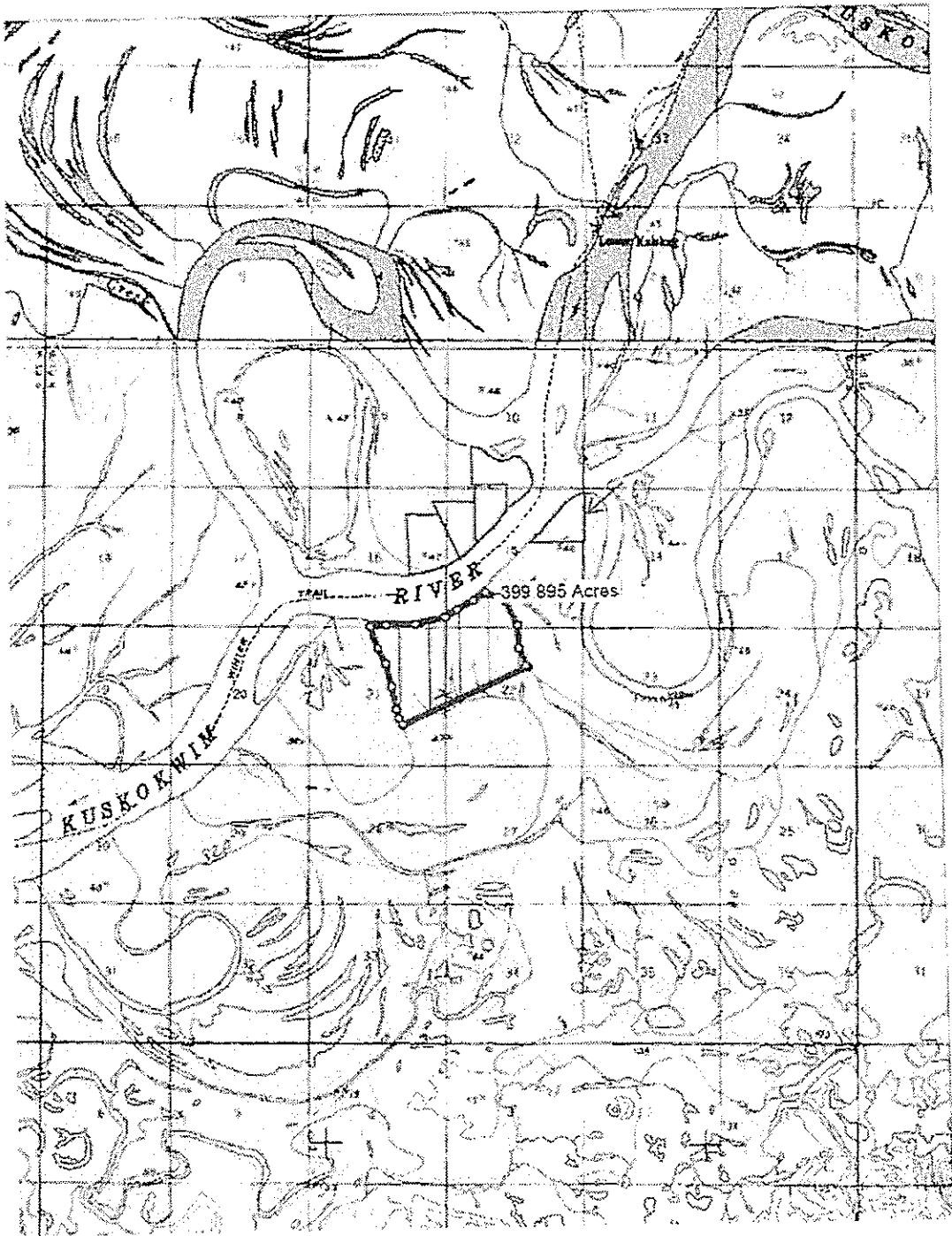
Township 16 North – Range 62 West, Seward Meridian

Section 15: portions of SW $\frac{1}{4}$

Section 16: portions of SE $\frac{1}{4}$

Section 21: portions of E $\frac{1}{2}$

Section 22: portions of NW $\frac{1}{4}$



The Native Village of Napaimute DBA: Napaimute Enterprises, LLC



A Business Plan for Napaimute's Firewood Business Expansion

P.O. Box 1301
Bethel Alaska 99559
(907) 543-2887 / (907) 222-5058 / (907) 222-6084 / (907) 545-2877 (cell)

napaimute@gei.net

www.napaimute.org



NONDISCLOSURE AGREEMENT

THIS AGREEMENT is made by and between The Native Village of Napaimute dba: Napaimute Enterprises, LLC, ("Company" or "First Party"), and _____, ("Second Party"), effective as of the date set forth below.

WITNESSETH: The parties hereto, intending to be hereby legally bound, agree as follows:

1. **General.** Second Party has requested or may be receiving from the Company information of a non-public nature in connection with dealings, contract or employment with the Company. As used herein "First Party", "Second Party" and "Company", includes each of their officers, directors, agents, employees and representatives and heirs, including financial and legal advisors (collectively, "Representatives").
2. **Confidential Information Defined.** The parties acknowledge that, in the course of the development, operation, employment and analysis of the Company, the Second Party may receive certain confidential information from or about the Company and its affiliates, officers, owners and directors, as the case may be, including but not limited to finances, marketing, target markets, suppliers, technical, financial and business information and models, names of potential customers, proposed business transactions with third parties, reports, plans, market projects, software programs, data and other confidential and proprietary information relating to the Company or its business whether provided orally or in writing. All such technical, financial or other business information, as described, thus supplied by the Company, or learned by Second Party, or its Representatives is hereinafter called the "Information".
3. **Exclusions from Definition.** The term "Information" as used herein does not include any data or information which is already known to the Second Party at the time it is disclosed to the Second Party, or which before being divulged to the Second Party (a) has become generally known to the public through no wrongful act of the Second Party; (b) has been rightfully received by the Second Party from a third party without restriction on disclosure; or (c) has been disclosed pursuant to a requirement of a governmental agency or of law without similar restrictions or other protection against public disclosure, or is required to be disclosed by operation by law.
4. **Nondisclosure Obligation.** Second Party, as well as its Representatives receiving any Information shall keep such Information confidential and shall not disclose such Information, in whole or in part, to any person other than its Representatives who need to know such Information in connection with the Second Parties involvement with the Company (it being agreed and understood that such Representatives shall be informed by Second Party of the confidential nature of the Information and shall be required by Second Party to agree to treat the Information confidentially).
5. **Standard of Protection.** For the purpose of complying with the obligations set forth herein, the Second Party shall use efforts commensurate with those that such party employs for protection of corresponding sensitive information of its own. However, in the event that the Second Party

receiving any Information is legally required to disclose any Information. Second Party shall promptly notify the Company of such request or requirement prior to disclosure so that the Company may seek an appropriate protective order and/or waive compliance with terms of this Agreement.

6. **Nonuse Obligation.** In addition to its obligation of nondisclosure hereunder, Second Party agrees that it will not, directly or indirectly, attempt to appropriate or otherwise take for its or other parties' benefit the business opportunity of the Company as it relates to the business of the Company.
7. **Ownership; Return of Information.** All Information (including tangible copies and computerized or electronic versions thereof) shall remain the property of the Company. Within ten (10) days following the receipt of a written request from the Company, Second Party will either deliver to the Company or destroy all tangible materials contain or embodying the Information received from the Company and the Second Party shall deliver to the Company a certificate certifying that all such materials in the Company's possession have been delivered or destroyed.
8. **No Representations or Further Obligations.** Neither this Agreement nor the disclosure or receipt of Information shall constitute or imply any promise or intention to undertake any specific action on behalf of the Company. It is understood that this Agreement does not obligate either party to enter into any further agreements or to proceed with any possible relationship or other transaction.
9. **Applicability to Representatives and Affiliates.** The obligations of the Second Party hereunder of nondisclosure and nonuse shall extend to its affiliates and Representatives.
10. **Governing Law.** This Agreement shall be governed by and construed and enforced in accordance with the laws of the State of Alaska.

IN WITNESS WHEREOF, the parties have executed and delivered this Nondisclosure Agreement effective as of the date of execution by the last party to execute this Agreement as set forth below.

Company

Second Party

Signature

Signature

Name

Name

Title

Title

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Executive Summary:

Napaimute means “People of the Forest”.

Our leadership has long recognized that the forest resources of the Middle Kuskokwim will play a key role in developing economic opportunities for the community, as well as for the People of neighboring villages.

For over a decade The Native Village of Napaimute DBA: Napaimute Enterprises, LLC has experimented with various ways of linking the supply of wood from the vast forests of the Middle Kuskokwim River to the great demand for wood along the Lower River and Coast.

In 2008, Napaimute established the first organized firewood business in our Region. This formal experience has given us a vision for where we want to go with our wood business and what we will need to get there.

It is our sincere hope that the following pages of this business plan will clearly demonstrate:

- *Napaimute’s experience, capability, and reliability in the Kuskokwim wood business.*
- *Napaimute’s vision for supplying Lower Kuskokwim and Coastal villages with an affordable energy alternative.*
- *Napaimute’s vision for providing increased economic opportunities for the People of the Middle and Upper Kuskokwim through employment and the purchase of wood from individual harvesters.*
- *Napaimute’s capacity for sound financial management of a business enterprise.*

The goal of this business plan is to obtain a \$200,000 capital loan for the purchase of specialized timber harvesting equipment. This equipment will allow Napaimute to continue to fulfill our vision for the development of a viable, sustainable wood products industry for the Middle Kuskokwim that provides an affordable alternative energy source for the residents of the Lower River and Coast.

Thank you for your consideration.

Business Description and Vision:

Our mission is to provide sustainable, affordable biomass energy alternatives to the People of the Lower Kuskokwim and Coast while at the same time providing increased economic opportunities for the People of the Upper and Middle Kuskokwim.

Our vision is to be the leader in the development of a biomass alternative energy products industry for the entire Region.

Goal 1: Increase current production of conventional firewood to meet the proven demand in the Lower River

Objective 1.1: Increase the supply of wood needed to meet the demand.

Objective 1.2: Increase the volume of wood harvested on tribally owned lands through the financing and purchase of specialized timber harvesting equipment.

Objective 1.3: Supplement our supply through the purchase of wood from other Upper and Middle Kuskokwim Villages.

Objective 1.4: Obtain timber permits on State, BLM, and village corporation lands adjacent to or near Napaimute's land.

Objective 1.5: Increase processing capacity through the addition of another firewood processor.

Objective 1.6: Increase number of employees.

Goal 2: Expand market to the Coast

Objective 2.1: Develop working relationships with the main coastal economic development entities.

Objective 2.2: Work with these entities to develop reliable, affordable transportation systems for wood products from Port of Bethel to Coastal communities.

Objective: 2.3: Obtain long-term commitments from Coastal entities for high volumes of wood products.

Goal 3: Be a regional promoter of additional forms of Biomass Alternative Energy

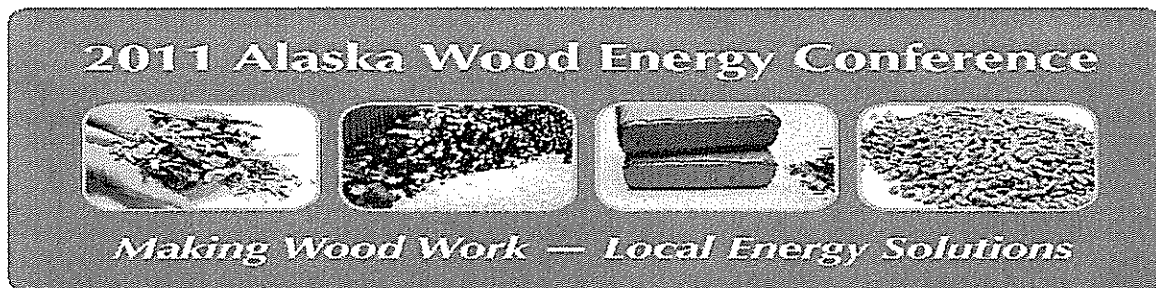
Objective 3.1: Explore cost-effective alternative energy sources that will allow us to get our briquette-making equipment operational and market briquettes in the Lower River and Coast.

Objective 3.2: Promote high-efficiency biomass boiler systems for the heating of public buildings in regional communities where feasible.

Objective 3.3: Continue to track the world-wide development of biomass pellet heating systems.

Objective 3.4: When applicable, promote the introduction of biomass pellet heating systems to our region, including the marketing and distribution of pellet stoves.

Objective 3.5: Promote the establishment of in-region pellet plants as opposed to importing pellets produced elsewhere.



Napaimute was a presenter at the 2011 Alaska Wood Energy Conference in Fairbanks



Wood Gathering in the 1940's: Napaimute's leadership has always looked back to help us remember where we come from & to plan where we want to go in the future

History: Napaimute means: *The People of the Forest.*

In Planning for our Community & Economic Development, Napaimute's Leadership has long recognized that our wood resources will play a key role. Pages 48 and 51 from the Napaimute Community Plan that we developed in 2004, clearly support that recognition.

We have also have been well aware of the historical demand for firewood in the Lower Kuskokwim River.

In further support of maximum use of our wood resources, all usable timber from community development projects has been salvaged, stockpiled, and utilized either for sawmill logs or firewood. We are most proud of the immense amount of wood obtained when 3,100' of the forest were cleared for the Napaimute Airfield.

With this huge volume of wood we began testing various ways of linking the supply of the Middle River with the demand in the Lower River. These tests centered on finding the most efficient methods of packaging and transporting wood for shipment to the Lower Kuskokwim.

Napaimute's leadership also recognized that wood salvaged from infrastructure projects was limited. They contracted with the United States Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) to do a forest inventory (2006) of and assist with the development of a sustainable management plan (2010) for the remaining wood resources on several hundred acres of land owned by the Native Village of Napaimute.

This inventory determined that Napaimute's forests are mature. They have grown as much as they can and need to be harvested before they start falling down. Some of our trees had quit growing as long as 50 years ago!

During the fall & winter of 2009, Napaimute experienced two high wind events. A follow up inventory in 2010, determined that we lost at least 40% of our timber to these events. It is simply blowing down.

Napaimute has now entered into an Environmental Quality Incentives Program (EQIP) contract with the NRCS for the clear-cutting and natural reseeding of 20 acres per year over the next 3 years as a key component of our forestry management plan. We have also negotiated a 5 year timber sale on an additional 400 acres of land owned by our parent Alaska Native Village Corporation – The Kuskokwim Corporation (TKC).

This Management Plan will provide an immense supply of firewood for years to come. 20 acres of harvested wood will yield 400 cords of firewood annually per the NRCS forester.

While the EQIP contract reimburses Napaimute for a part of the expense of clear cutting and natural reseeding, it will not be nearly enough with our current inefficient harvest methods. We need equipment specifically designed for timber harvest.

Our long-term goal is to harvest 1,500 cords per year from Kuskokwim Corporation land, supplemented by the purchase of additional cords from our neighboring villages. Previous State-funded studies have shown the true demand for wood in the Lower River to be a minimum of 4,000 cords annually.

In 2009, with the key components of a successful firewood business in place, Napaimute formed the first organized firewood business on the Kuskokwim River:

1. A proven historical demand by the high population of the Lower Kuskokwim River & Coast.
2. A long-term supply of wood on tribally-owned land with the potential to supplement from 4 other local sources.
3. Specialized firewood processing equipment.
4. Standardized packaging techniques (packaging & palletization of split firewood and the banding of one cord bundles of round logs).
5. A cost-efficient, well-developed transportation system to the Lower River: backhauling on barges returning to the Port of Bethel empty after delivering fuel & freight to communities above Napaimute.

These 3 years of formally being in the firewood business have given Napaimute vast experience in the harvesting, processing, packaging, transportation, marketing, and distribution of the Upper and Middle Kuskokwim's wood resources. It has also given us a true understanding of the great demand for firewood in the Lower River and Coast.

We have doubled our production each year and are still sold out before winter is half over. With this experience Napaimute has formed a vision for the great potential that is possible for providing a serious affordable energy alternative for the Lower River and Coast while at the same time increasing the economic opportunities for the Upper and Middle River residents.

Key Company Principals:

- Mark Leary, Director of Development & Operations: eleven year employee of the Native Village of Napaimute has overseen all community development projects over the past decade with an emphasis on

maximum utilization of our local natural & human resources, including the development of Napaimute's firewood business. His focus now is economic development for Napaimute and the Middle/Kuskokwim in general. Life long experience with transportation on the Kuskokwim River. College Degree.

- Napaimute Traditional Council: the 5 member governing body for the Native Village of Napaimute made up of educated, professionally-oriented individuals from the Kuskokwim, Anchorage, and the Pacific Northwest.

Definition of the Market:



A view of the treeless tundra at Bethel, pop: 6,000

The Market: The market is represented by the 20,000 residents of the treeless Lower Kuskokwim River & Coast.

Historically there has always been a great demand for firewood in the treeless Lower Kuskokwim River and Coast. People have traditionally relied on the seasonal cycles of the River to bring the wood down to them from the vast forests of the Upper Kuskokwim in the form of drift wood. Firewood gathering was also supplemented throughout the year by occasional journeys upstream to harvest firewood closer to the source.

Although the huge increase in the price of heating oil has reinstituted firewood as an important home heating alternative, there is another almost as equally important use for it: steam bathing (like a wet sauna). Hundreds of steam baths can be found throughout the communities of our region. In some villages, nearly every household has one.

Many of our villages lack running water so steam bathing is the only way people have of getting clean - *a critical health issue*. The availability of wood determines how often people are able to bathe. If affordable wood is readily available people will steam bath every day - just as people in more developed communities will take a daily shower.

Wood for steam bathing is a huge market in itself.

Now with the increased population of the Lower River, highly variable River conditions, land ownership issues, and of course rising fuel costs, the demand for firewood as an alternate heating source is huge and cannot be met through traditional individual harvest methods.

Napaimute is the only organized firewood business on the Kuskokwim River. There are several individuals who, on occasion, harvest low volumes of firewood and sell it locally in the form of round logs. We estimate that at our current production levels Napaimute is meeting less than 10% of the demand for wood that exists. We also believe that the increased availability of affordable firewood will lead to an increase in demand. If wood is easier and cheaper to get – people will use more. The ceiling of demand is unknown at this time.

The *Forest Development Potential in the Middle Kuskokwim* report, page 68 (1981) prepared by Reid, Collins, Inc. contractor for the Kuskokwim Native Association, through an appropriation from the 11th State Legislature, administered by the Department of Community and Regional Affairs, Division of Community Planning forecasts the 1985 Kuskokwim consumption of firewood to be 4,650 cords.

They estimate that if adequate volumes of firewood were available consumption would be more than 4 times that: 17,050 cords!

26 years later, with a 20% population increase and the extremely high price of fossil-fuels who knows what the true demand is.

Description of the Products and Services:

Products & Services: Napaimute is in the firewood business. Simple and not very exciting in the world of big business, but big news in the Lower Kuskokwim and Coastal Villages.

We produce two main types of firewood packages:



1/3 cord packages of split firewood



One cord bundles of round logs

1. 1/3 & 1/2 cord palletized bags of cut & split “stove-ready” firewood. A value-added product never seen before in our region that is quickly becoming popular – especially with Elderly People.
2. 1 cord value bundles of round log firewood for those that still prefer to cut and split wood themselves.

We also provide delivery service in Bethel and to local area villages that are accessible by truck on the ice road. There is no charge for delivery to Elders.

Competitive Pricing: At this time our only competition is from the heating oil company.

The price of stove oil in Bethel, the largest community in Western Alaska, is now \$6.78 per gallon. It is even higher in many of the outlying villages: \$7 or more. A cord of spruce = about 130 gallons in heating BTUs. At \$6.78 / gallon a cord of spruce is worth \$881.40 of stove oil at the Bethel price. Our average price for a cord of round wood will average about \$600 FOB Bethel. ½ cord bags of chopped wood will be about \$375. People are saving real money with Napaimute's firewood!

Our pricing is based on our true costs to harvest, process, and transport our product from the Middle to the Lower Kuskokwim plus a reasonable mark up.

Organization and Management:

Our current operation is small. Organization is as follows:

The Director of Development and Operations oversees the overall operations of the firewood operation, its employees (6-10 people), and its basic financial management. More in-depth accounting is provided by our accountant, Mia Jenkins with Tabularis Bookkeeping.

The former manager of the Donlin Creek Exploration Camp Maintenance Shop is the general manager responsible for day to day operations. Under him are also several key employees that were also in supervisory positions during the height of exploration at Donlin Creek.

The Director makes monthly progress and financial reports to the Traditional Council. The Traditional Council makes all major financial and operating decisions. With additional company growth a separate position for the management of this business will need to be created and filled. With the reduction-in-force from the Donlin Creek Exploration Project, there are several highly-trained managerial level local people who would be ideal for this position and have expressed interest in it.

Legal Structure: At this time Napaimute's leadership is seeking assistance from our attorney as to the best legal structure for the firewood business. An LLC has been organized in anticipation that this will be the most suitable legal structure. We have an executed timber sale agreement with The Kuskokwim Corporation that requires us to have an approved Detailed Plan of Operation with State Division of Forestry and various types of insurance that includes general liability, pollution, loggers, and workers compensation. All of these are in place.

We also have a State of Alaska Business License and a City of Bethel Business License.

Marketing and Sales Strategy:

Our current marketing and sales strategy has been simple and worked well for the limited volume of firewood Napaimute has been producing. Each year, we are sold out of product before winter is half over.

We advertise our product through our website: [www: napaimute.org](http://www.napaimute.org) and ads in our local news paper.

The goal of this business plan is to obtain financing for specialized timber harvesting equipment. This equipment will allow Napaimute to reach our long-term goal of harvesting: 1,500 cords of firewood annually.

With the capacity to do this in place, it is the intention of Napaimute to enter into long-term agreements with Lower River and Coastal Entities such as village corporation stores and CDQ groups. We will however continue to provide local firewood sales to individuals in Bethel and the many surrounding villages.



Hardworking Napaimute timber harvesting crew: good employment opportunities for the People of the Middle Kuskokwim

Financial Management:

This financial management plan is based on a 500 cord minimum harvest on a combination of tribally-owned and corporation land in 2013. Our long-term goal is to produce a minimum of 1,500 cords per year. We have also begun purchasing driftwood from people in communities upstream from Napaimute in an effort to provide increased economic opportunities for the People of the Middle and Upper Kuskokwim. This source is gradually increasing. In 2012 we purchased over \$30,000 worth of firewood from Middle Kuskokwim residents.

Current Operations:

For each of the past three years we have worked to double the amount of wood we send to the Lower Kuskokwim. Even with large increases in volume over each of those years our product has been sold out within weeks – before winter is half over. We simply cannot produce enough wood cheaply and safely with our current operations. Our average annual harvest was 200 cords. This is why we need to invest in specialized timber harvesting equipment: a John Deere 200LC Harvester. In 2012 we conducted a 1,000 cord firewood harvest using a timber harvester owned by Coastal Villages Region Fund (CVRF), the CDQ group for the Lower Kuskokwim and Coast. We proved that it could be done and learned a great deal while doing it. Now CVRF wants to sell the harvester to Napaimute.

The majority of our timber harvesting occurs in late winter: February, March and April as weather permits. This is the optimum time for timber harvest in our region. The days are long enough to put in an 8 – 12 hour day.

Temperatures are not too cold. There are no leaves to hide the terrain or bugs to make workers uncomfortable. The harvested wood stays clean. Most importantly environmental damage is minimized by harvesting while the ground is still frozen. We can harvest during the summer months if we need to, but prefer late winter.

Our forest management plan calls for a 20 acre per year clear cut and the natural reseeding on 250 harvestable acres of tribally-owned land. A 20 acre per year clear cut will yield up to 400 cords of wood according to an analysis completed by the forester from the USDA-NRCS of Napaimute's forest resources. For the purpose of fulfilling the one-year contract with CVRF for 1,000 cords we harvested just over 40 acres in 2012. The overall goal of this forest management plan is to improve the health of our forest while at the same time making economic use of the timber resources before they are lost. Our forest management plan is also applicable to Kuskokwim Corporation lands where we will be doing the majority of our timber harvesting for the next 5 years.

Doing a 40 acre clear cut using a John Deere 200LC Harvester:



Harvester at Napaimute: these all-terrain machines mechanically cut down trees; lay them down, trim off the branches, cut into desired lengths, and then stockpile. All in about a minute per tree!

Extensive research and real-time experience on the cost benefit of harvesting timber with a modern harvester machine shows the following:

A harvester can process (fell, limb, cut to length & stock pile) about one tree per minute. To be conservative 20 trees per hour translating to 7 cords per hour or 40 cords per day. Total number of days to harvest 500 cords would be 12.5 days. We round that up to 15 days for contingency purposes.

15 days X \$1,200 per day cost of operating the harvester (including operator & fuel) = \$18,000
42% fringe X \$ 3,600 (\$30/hr. X 120hrs.) = \$1,512

15 days of bull dozer time for access road building and clean up X \$1,150 / day (w/ operator & fuel) = \$17,250
42% fringe X \$3,000 (\$25/hr. X 120 hrs.) = \$1,260

15 days of loader time X \$1,200 / day for log handling at harvest site (w/ operator & fuel) = \$18,000. 42% fringe X \$3,000 (\$25/hr. X 120 hrs.) = \$1,260

Total cost to harvest & stock pile 500 cords of wood with a mechanized harvester: \$57,282 or \$115 per cord

Processing:

At the processing site wood is banded into 1 cord bundles of round logs or bagged as ½ cords of split “stove ready” firewood for shipment by barge to the Lower River.

Cost to process a 1 cord bundle of round logs:

Because a mechanized harvester can be programmed to cut trees into any desired lengths, all wood will already be pre-cut to 8’ lengths.

There will be .5 hrs for banding per bundle X 300 - 1 cord bundles = 150 hrs X 2 people X \$18/ hr. each = \$5,400. 42% fringe X \$5,400 = \$2,268
Total labor: \$7,668

1-1/4” steel banding is \$0.35 / foot X 12,000 feet to bundle 300 cords of wood = \$4,200

Loader time for handling bundles is calculated @ .5 hrs / bundle X 300 bundles = 150 hrs X \$150/hr. = \$22,500 for loader w/ operator & fuel. 42% fringe X \$3,750 (\$25/ hr. X 150 hrs.) = \$1,575
Total loader time: \$24,075

Total cost for processing: \$31,743 or \$106 per cord

Total cost is \$221 per cord harvested, transported, and processed.

Other:

Dunnage: an estimated 12,000 lineal ft. of 4” X 4” dunnage will be required for proper, safe handling and loading on barge.

4” X 4s” produced at the Napaimute saw mill are \$1.88 per ft X 2,400’ = \$4,512 (\$4,500) or \$15/ cord.

Total per cord = \$236

Overhead:

For this project we are using 25% to compensate for general overhead which includes: accounting, administration, insurance, Bethel land lease, incidentals, and contingency. 25% X \$236 = \$59

Timber Purchase Price from Kuskokwim Corporation: \$20 / cord

Debt Service: Financing: \$230,000 5 yr. loan @ 6% = \$53,358.72 annually or \$54 / cord

Total per cord cost of firewood F.O.B. Kalskag Harvest Site: \$369 (COG)

Shipping to the Lower Kuskokwim Market:

Barge transportation to from harvest site to Bethel is \$100 per cord

Proposed Mark Up: 40% X \$469 = \$656.60 / cord (\$650) for round logs.

300 cords X \$650 = \$195,000 in revenue.

Cost of Goods (COG) is \$140,700

Profit: \$54,300

Packaged Split Firewood: a value added product from Napaimute:

The second and perhaps most important part of this business plan is the production of ½ cord bags of “stove ready” split & packaged firewood. These convenient bags of wood are becoming the bread and butter of our operation.

This value added product is completely new to our region being first introduced by Napaimute in 2008. It is quickly becoming popular with elderly people who have cut and split enough wood in their lives but still want to heat with wood. Also people who have full time jobs, whose leisure time is valuable favor Napaimute’s cut, split, & packaged wood. They would rather do other things with their time off than make the long journey to harvest firewood.

The following are the revenue projections for 400 – 1/2 cord bags of split firewood (200 cords):

With wood produced with a mechanized harvester:



½ cord bags of split firewood awaiting transport by barge from Napaimute to Bethel

COG PER 1/2 CORD BAG:

<u>DESCRIPTION</u>	<u>COST</u>
HARVEST & STOCKPILING (\$115 / CORD BASE COST)	\$57.50
MESH BAG	\$20
TARPS	\$5
MISC (STRING, STAPLES, MARKING, LABELS)	\$4
OPERATOR LABOR (\$18 / HR PRODUCES ENOUGH WOOD FOR 2 BAGS)	\$9
PACKAGING LABOR (2 PEOPLE @ \$13/HR , 1/2 hr. per bag)	\$13
BARGE FREIGHT FROM NAPAIMUTE TO BETHEL / BAG	\$75
GAS FOR FIREWOOD PROCESSOR (1 GAL / BAG)	\$7
HANDLING (\$700/ DAY FOR LOADER & OPERATOR = \$88 /HR X .25 HR / BAG)	\$22
SUBTOTAL:	\$190.50
OVERHEAD – 25%	\$48
TKC TIMBER ROYALTY	\$10
<u>DEBT SERVICE</u>	<u>\$27</u>
TOTAL:	\$275.50

$\$275.50 \times 45\% \text{ MARK UP} = \$400 / \frac{1}{2} \text{ CORD BAG RETAIL} \times 400 \text{ BAGS} = \$160,000 \text{ IN REVENUE}$

COG = \$110,200

NET PROFIT: \$49,800

Napaimute Firewood Business Revenue Projections*

<u>YEAR</u>	<u>CORDS</u>	<u>REVENUE</u>	<u>EXPENSES</u>	<u>NET</u>
2013	500	\$355,000	\$250,900	\$104,100
2014	750	\$525,000	\$372,250	\$152,750
2015	1,000	\$725,000	\$510,000	\$215,000

*PRICE OF FIREWOOD WILL BE ADJUSTED AS FUEL COSTS INCREASE

Appendices:

Resumes

Pages from *Forest Development Potential in the Middle Kuskokwim*

Napaimute Firewood Presentation

Kuskokwim Corporation Timber Sale Agreement

Letters of Support

News Articles (TKC, NVN, AK DISPATCH)



Mark D. Leary

Objective: To demonstrate knowledge & experience in relation to sound financial management of a wood products based business enterprise.

Experience: 2000 – 20013 Native Village of Napaimute – Napaimute/Bethel, AK.
Tribal Administrator/Director of Development & Operations
Responsible for organizing Traditional Council meetings, coordinating all aspects of the Annual Tribal Gathering, procuring equipment to develop the village, negotiating land transfers, planning for all aspects of a developing community, including management of construction projects, administration of the annual budget, and management of the Native Village of Napaimute's for-profit subsidiary, Napaimute Enterprises which includes fuel sales, lodging, equipment rental, and wood products.

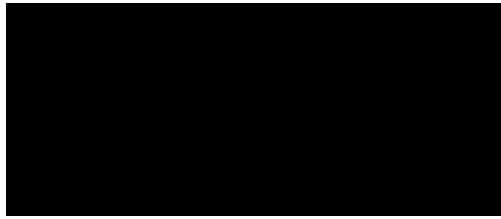
1988 -1999
High School Social Studies / Vocational Education Teacher
In the villages of Holy Cross, Tuluksak, and Kalskag

1990 - 2001
Kuskokwim River Barge Captain
Kuskokwim Lighterage and Trucking – Bethel, AK. and all Kuskokwim Villages

Education:

References:

References:



**Community/volunteer
Activities:**

Kuskokwim River Salmon Management Working Group – Upriver
Subsistence Representative (alternate)

State of Alaska Snowmachine Trails Advisory Committee Member

Bethel Search & Rescue – Board of Directors

Kuskokwim 300 – Board of Directors

Kuskokwim Watershed Council Interim Steering Committee

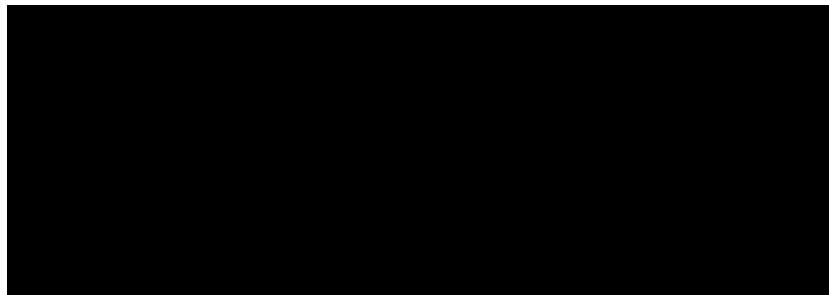
Mid Yukon Kuskokwim Soil Conservation District Board Member

Interior Rivers RC & D Council Board Member

SB 40 (Kuskokwim Port Authority)committee

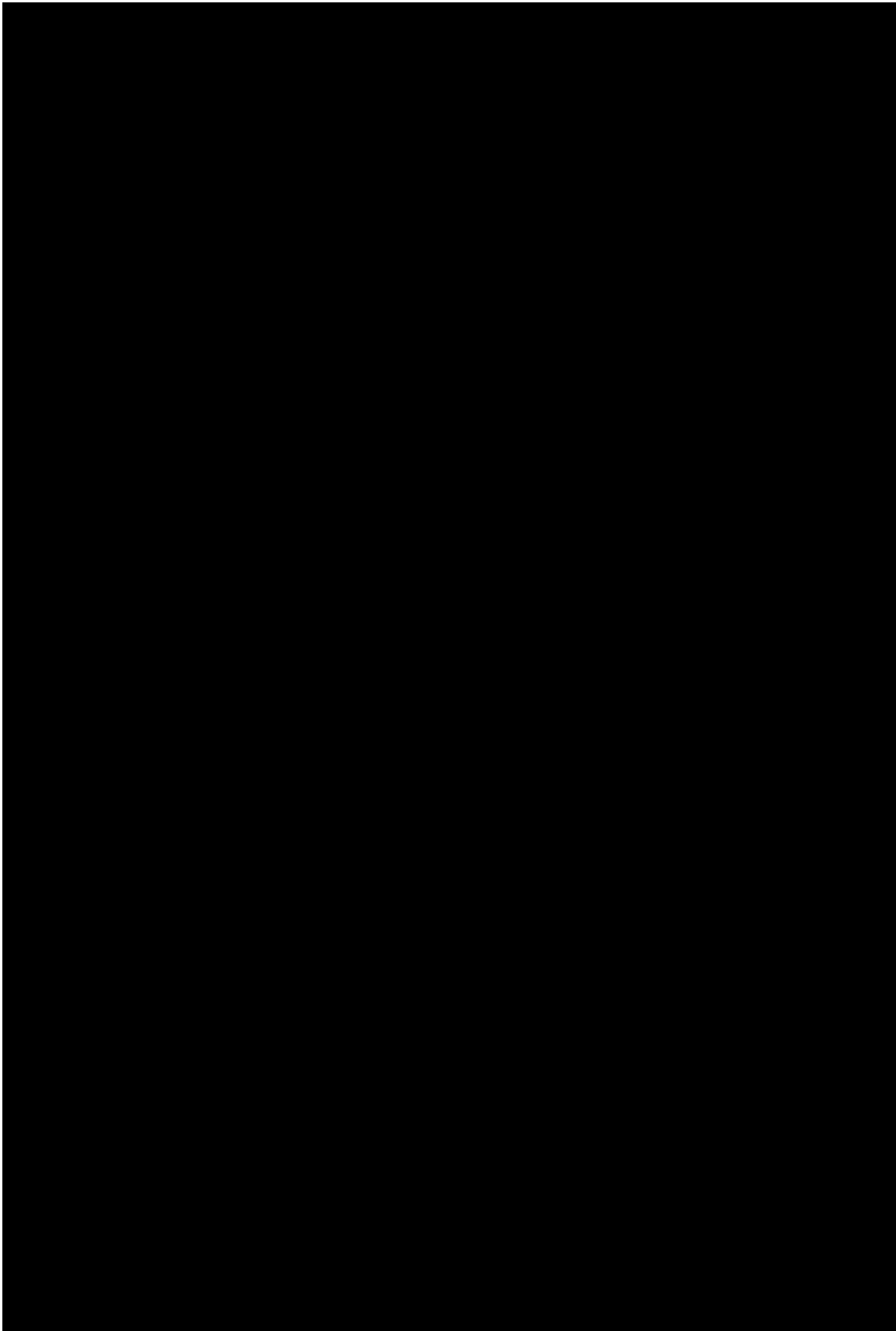
Exploratory Committee for the Formation of a Middle Kuskokwim
Borough

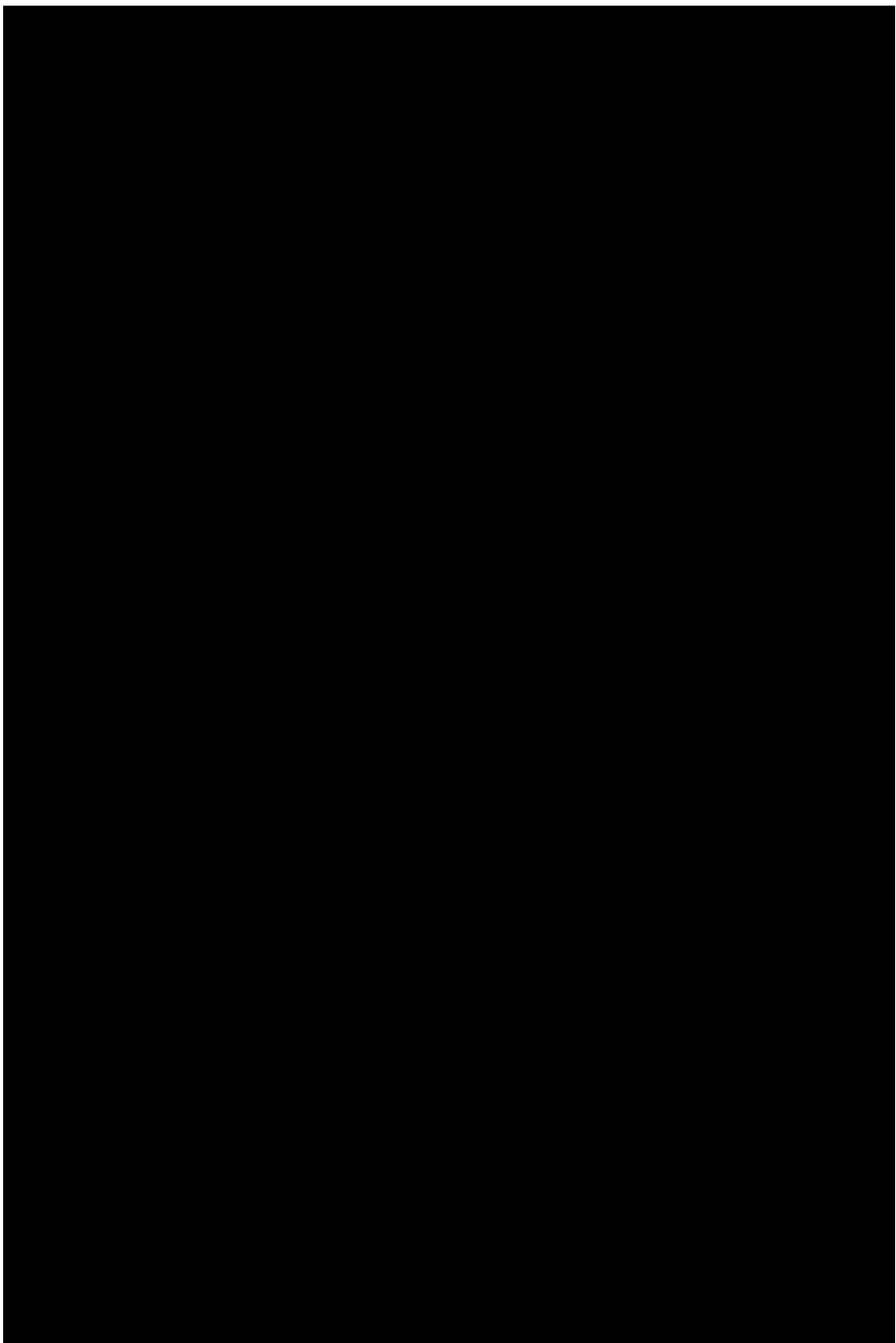
Interests/activities:

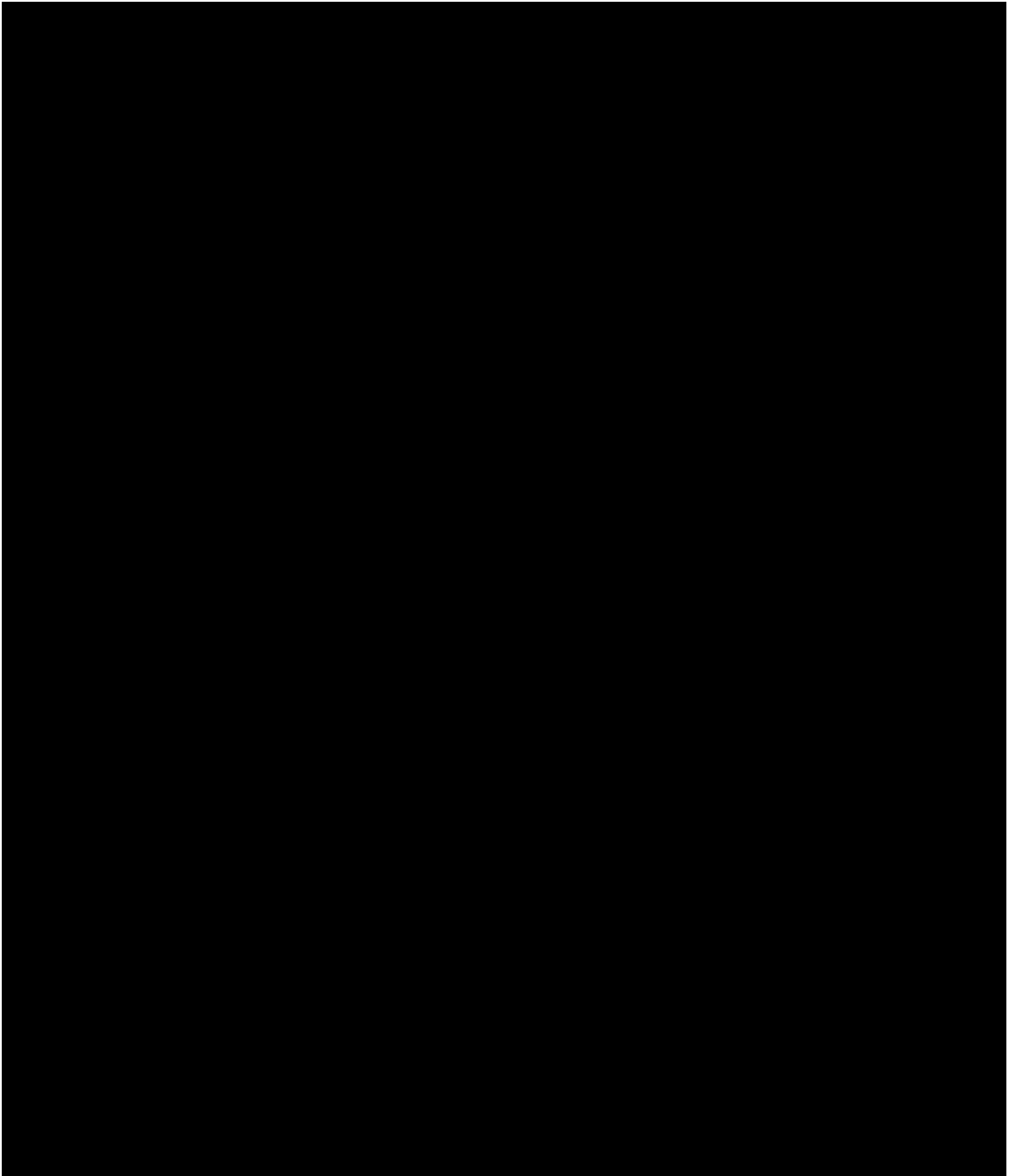


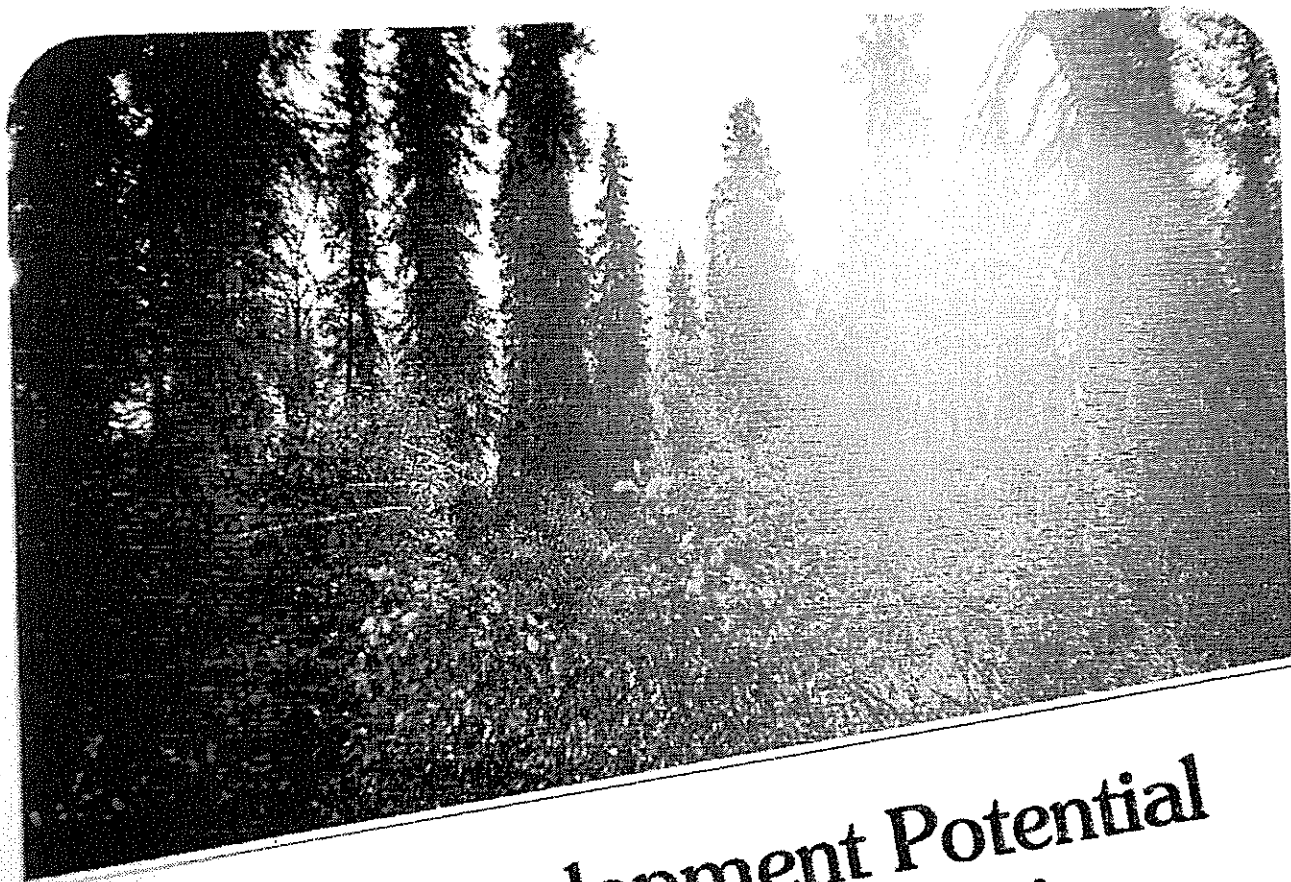
Awards: 1996 Alaska Social Studies Teacher of the Year

2003 Bethel Search & Rescue Member of the Year

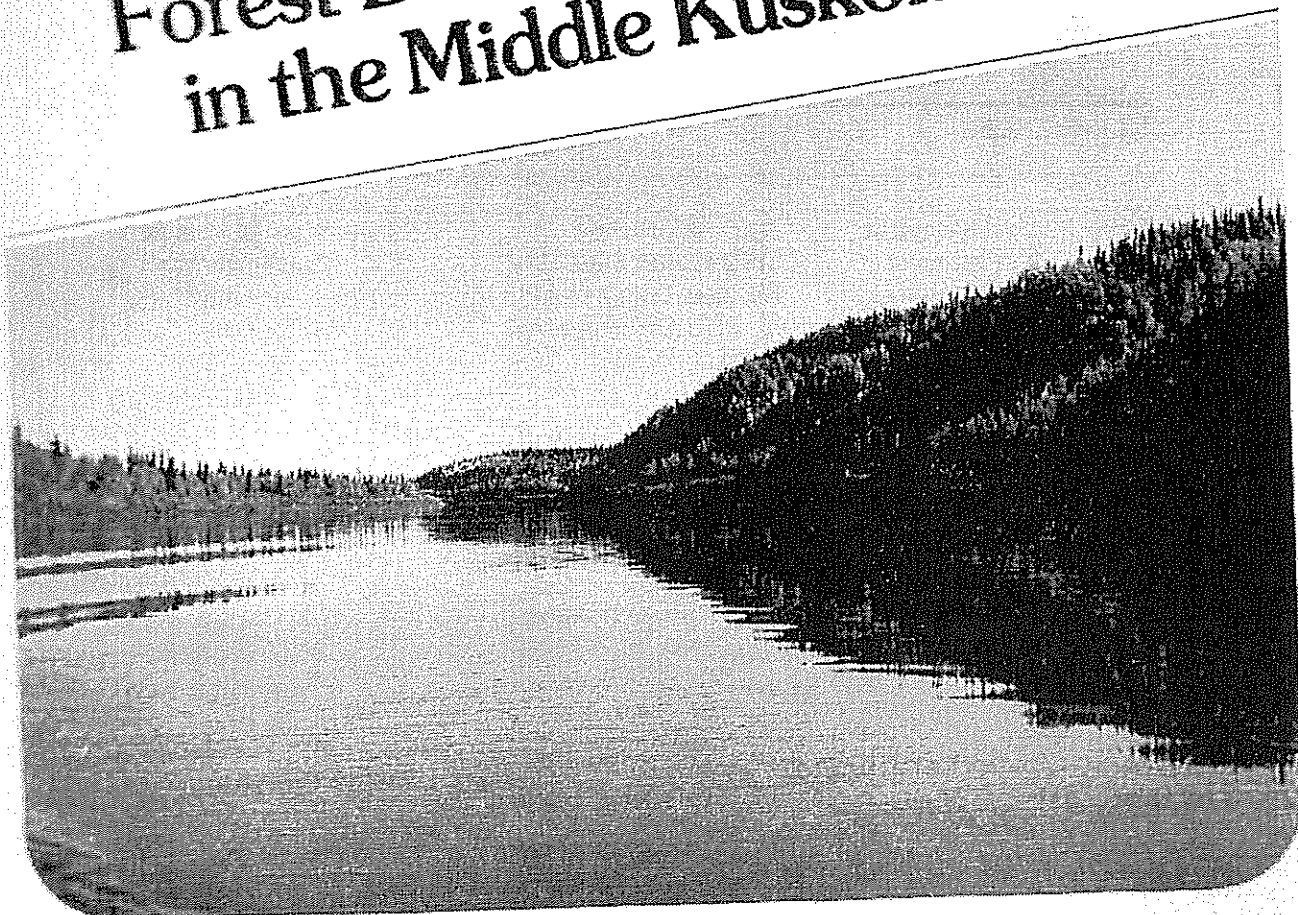








Forest Development Potential in the Middle Kuskokwim



Forest Development Potential in the Middle Kuskokwim

JUNE, 1981

PREPARED BY:


John Hammons

REID, COLLINS INC.
1557 "C" STREET, SUITE 214
ANCHORAGE, ALASKA 99501

ACKNOWLEDGEMENTS

Special appreciation is extended to Mr. Hank Hayes and Mr. Jim Venard of the U.S. Forest Service for their time and contributions to this effort, to the Board of Directors of The Kuskokwim Corporation who graciously made available their resource information and the time of their staff and to Sinka Sakar of Chuathbaluk who guided the project team through the Kuskokwim area and contributed valuable information based on his forestry experience in the area.

This report was funded by a State of Alaska, Eleventh Legislature Appropriation, contracted to the Kuskokwim Native Association and administered by the Department of Community and Regional Affairs, Division of Community Planning, 1980-81 and by a grant from the Alaska Renewable Resources Corporation.

5.6.3 Firewood Consumption

Generally, about 10 cords of firewood will heat a reasonable size home for a season. Fritz Bonhauser, who has heated with wood in the Stony River Area for the last 20 years, uses about 10 cords.

Based on the housing profile in Section 5.4 and a 10 cord consumption factor, the following firewood consumption estimate has been developed for 1980:

Area	Total Housing Units	% Using Wood	Homes Using Wood	Consumption
Bethel	1080	11	119	1190
Lower Villages	215	11	24	240
Middle Villages	271	66	179	1790
Upper Villages	139	66	92	920
Totals	1705		414	4140

Wood heat may be supplemented with other types of heat so these estimates should be viewed as potential consumption rather than actual consumption.

5.8.2 Firewood

Assuming no shift in the proportion of the population who heat with wood, the consumption information developed in Section 5.6.3 was used to develop the following forecast of firewood consumption:

1980	4140 cords
1985	4650 cords

The potential use of firewood is very much larger than this forecast. If adequate volumes were available to heat all homes in 1980, consumption could be 17,050 cords or about 1,364,000 cubic feet solid wood equivalent per year.

5.9 Potential Consumption of Locally Produced Material

5.9.1 General Considerations

The consumption forecast given in Section 5.8 is not supply specific or end-use specific. As outlined in Section 5.6, the great majority of this volume is now supplied by imports through the port of Bethel. Most of this import volume appears to be surfaced, kiln dried western dimension timber. Table 19 sets out a very general estimate of the volume consumed in new residential construction. It appears that only about 25% of the volume is used in new home construction. The rest must be used in infrastructure developments such as public and commercial buildings; remodelling and upkeep to existing structures; and general uses such as walkways, out-buildings and so on. Better end use information is important and essential for any marketing effort as different end-uses impose different material requirements.



United States
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Potential for Forest Products in Interior Alaska

George R. Sampson, Willem W.S. van Hees, Theodore S. Setzer,
and Richard C. Smith



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Authors

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Abstract

Sampson, George R.; van Hees, Willem W.S.; Setzer, Theodore S.; Smith, Richard C. 1988. Potential for forest products in interior Alaska. Resour. Bull. PNW-RB-153. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 28 p.

Future opportunities for producing Alaska forest products were examined from the perspective of timber supply as reported in timber inventory reports and past studies of forest products industry potential. The best prospects for increasing industrial production of forest products in interior Alaska are for softwood lumber. Current softwood lumber production in the interior is less than 20 percent of the average annual softwood lumber consumption in Alaska. The dispersed nature of harvestable timber and the attendant poor access are major obstacles to increasing the interior's softwood lumber production. A long-term alternative is to convert hardwood types and black spruce type to contiguous stands of white spruce.

Keywords: Forest products output, *Picea glauca*, white spruce, interior Alaska, Alaska (interior).

Summary

A study was conducted to determine the potential for increased production of forest products in interior Alaska. Lumber from white spruce (*Picea glauca* (Moench) Voss) offers the best opportunities because of local demand and the size and availability of white spruce sawtimber. Softwood lumber imports to Alaska have averaged 100 million board feet annually in recent years, whereas production in the interior has remained below 20 million board feet. The dispersed nature of harvestable sawtimber and the attendant poor access are two major obstacles to increasing the harvest and utilization of the interior's white spruce. The Tanana Valley offers the best opportunities because of the relative abundance of white spruce and existing primary access by highway and the Alaska Railroad. A long-term alternative is to convert hardwood types and black spruce (*Picea mariana* (Mill.) B.S.P.) type to contiguous stands of white spruce. Use of removed biomass as fuel in local electric generating plants would help defray the cost of type conversion.

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1	Purpose
1	Potential Demand for Interior Alaska Timber
3	Characteristics of Interior Alaska Timber Supply
4	Tanana Valley
6	Susitna Valley
7	Kuskokwim Valley
8	Kenai Peninsula
8	Copper River
9	Upper Yukon
9	Lower Yukon
9	Limiting Factors
10	Ownership and Dedicated Use
13	Production Costs
15	Future Cost Competitiveness of the Interior
16	Processing Alternatives
20	Harvesting Alternatives
22	Summary and Conclusions
23	Metric Equivalents
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Purpose

More than 75 percent of Alaska's population lives in the interior. An estimated 80 percent of the softwood lumber consumed annually in the Interior is imported from the Pacific Northwest and Canada (Lindh 1979). Only minor amounts of hardwood timber are used locally for products other than fuelwood. In this paper, we identify major obstacles to increasing the use of the interior's timber resource for local products and examine alternatives for overcoming these obstacles.

For this paper, interior Alaska is defined as the forested part of Alaska from Anchorage north, plus the western half of the Kenai Peninsula (fig. 1). This area has more than 105 million acres of forest land, more than 22 million acres of it classed as timberland¹ (Hutchison 1967).

We focus on the potential for increasing production of softwood lumber. Supply data for hardwood timber is included in the discussion of geographic supply areas; past and present use of hardwoods is included where appropriate. Two studies in recent years have investigated the potential for particleboard production in interior Alaska (Columbia Engineering International, Ltd. 1982, Harpole and others 1977). Both of these studies concluded that particleboard production is infeasible unless markets develop in Pacific Rim countries. Plywood and pulp production in the interior have not appeared sufficiently promising to justify a study.

Two studies investigating the potential for forest management and development in interior Alaska have been done in the last decade. Hyde and Krutilla (1979) examined the potential for a profitable forest industry in the interior as a basis for determining the feasibility of National Forest designation of land set aside under Sec. 17(d)(2) of the Alaska Native Claims Settlement Act of 1971. They concluded that neither timber-based regional development nor multiple-use development including timber was feasible. None of the (d)(2) lands were designated for National Forest when the Alaska National Interest Lands Conservation Act was passed in 1980.

Smith (1980) studied forest resources and the existing forest industry in interior Alaska and made recommendations for research and development. He concluded that forest development in the most accessible parts of the railbelt and Tanana Valley could be expanded if demand for export products continues to rise, major land-base problems are resolved, and timber harvesting and manufacturing costs can be lowered.

Potential Demand for Interior Alaska Timber

The future demand for forest products from interior Alaska will depend on local population and economic growth and the competitive position of wood products from interior Alaska compared with those produced in western Canada, western Oregon, and western Washington. Alaska's population is concentrated in the railbelt area (the general area that can be accessed from the Alaska Railroad running from Seward to North Pole, Alaska).

¹ In this paper "forest land" is land at least 16.7 percent stocked by forest trees of any size, or land formerly having such tree cover, and not currently developed for nonforest use; "timberland" is used to define forest land producing or capable of producing crops of industrialwood and not withdrawn from timber utilization. Areas qualifying as timberland could produce more than 20 cubic feet per acre per year of industrialwood under management.

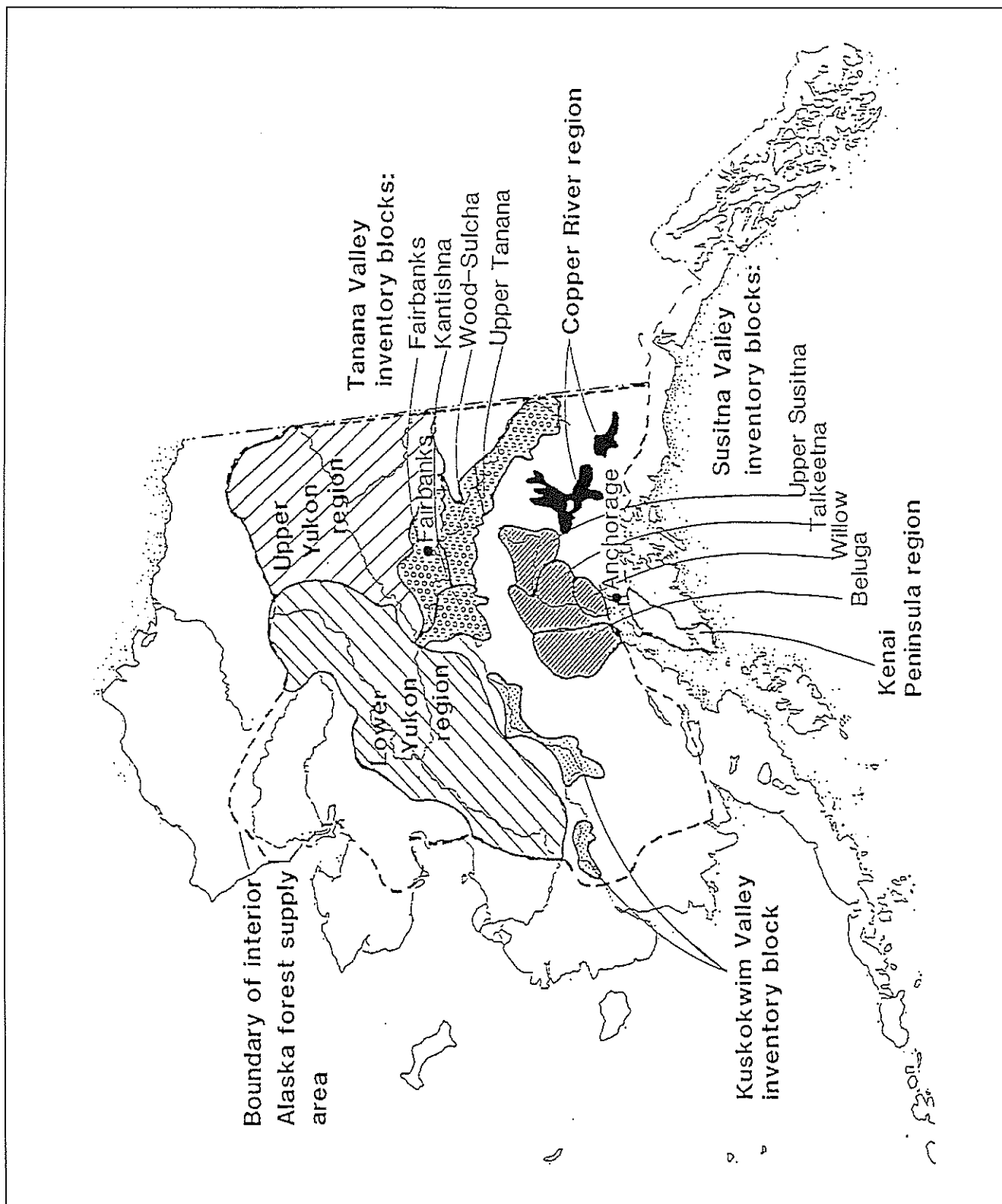


Figure 1—Boundaries of interior Alaska and timber regions and location of inventory blocks in the Kuskokwim, Susitna, and Tanana valleys.

Based on a population projection of 550,000 and consumption rates associated with medium national projections (USDA Forest Service 1982), estimated annual use of major types of wood products in Alaska in 1990 are as follows:

Type product	Volume
Hardwood lumber	22.8 million board feet
Softwood lumber	107.8 million board feet
Softwood plywood	53.4 million square feet (3/8-inch basis)
Particleboard ²	34.4 million square feet (3/8-inch basis)
Fuelwood	2.5 million cubic feet

Consumption of hardwood lumber in Alaska will probably remain well below the volume predicted above. Nationally, much of the hardwood lumber is used in furniture manufacturing and floors. Only two small manufacturers of cabinets, paneling, and flooring, and a few artisans are using interior Alaska's hardwood timber for purposes other than fuelwood. Because Alaska does not have major manufacturing plants that use hardwood lumber, the volume of hardwood lumber used within the State is very low. Most wood furniture, flooring, paneling, and cabinets are shipped to Alaska in finished form.

Softwood lumber is the major wood product market in Alaska. Consumption level depends directly on new construction, remodeling and repairs, and industrial activity.

Use of particleboard in Alaska is well below the consumption predicted above. Alaska lacks major industrial wood users such as furniture and mobile home manufacturers who use large quantities of particleboard. Structural particleboard can be interchanged with plywood for uses such as roof and wall sheathing and subflooring. Some customer resistance to this change, however, is likely (Columbia Engineering International, Ltd. 1982).

Other wood products used in Alaska are timbers, posts, utility poles, piling, railroad ties, and paper products.

Characteristics of Interior Alaska Timber Supply

The important timber species found in interior Alaska are white spruce (*Picea glauca* (Moench) Voss), paper birch (*Betula papyrifera* Marsh.), balsam poplar (*Populus balsamifera* L.), black cottonwood (*Populus trichocarpa* Torr. & Gray), and quaking aspen (*Populus tremuloides* Michx.). Black spruce (*Picea mariana* (Mill.) B.S.P.) furnishes only small amounts of wood for products, but is important in forest management because much of the forest land is in the black spruce type. These species are also found from northern Maine and eastern Canada across the northern Lake States and central and western Canada.

² Includes composite board, flakeboard, medium-density fiberboard, and waferboard.

Permafrost soils and extensive bogs of interior Alaska restrict productive forests to particular sites. The mixed forests of white spruce and hardwoods grow best on warm south-, east-, and west-facing slopes and along the valley bottoms. The forests of the Kenai Peninsula and Susitna Valley differ somewhat from the forests north of the Alaska Range; productive forest stands cover a greater proportion of the area and are much less scattered than in the remainder of the interior.

For discussion purposes, we have divided interior Alaska into seven timber supply regions (fig. 1). Three of these, the Kuskokwim Valley, the Susitna Valley, and the Tanana Valley, are thought to have the best potential for long-term timber industry development at this time. The Kuskokwim Valley was inventoried as one unit. The Beluga, Talkeetna, Upper Susitna, and Willow inventory blocks make up the Susitna Valley data. The Fairbanks, Kantishna, Upper Tanana, and Wood-Salcha inventory blocks make up the Tanana Valley data. Locations of interior Alaska inventory blocks for these three supply regions are shown by figure 1. The Tanana Valley and Kuskokwim Valley areas include only the contiguous forest land on either side of the river, which is 12 to 50 miles wide along the Tanana River, but only a few miles wide along the Kuskokwim River. The Susitna Valley areas are not restricted to the river and include all lands within the general boundary including those between river valleys. Timber inventory data about the three regions are shown in table 1.

Operability factors for these regions are shown in table 2. Operability as used here means economic operability and includes factors that have a major impact on the delivered cost (per unit of volume) of timber at the processing plant. The operability factors give an estimate of the cost of harvesting. The higher the ratio of timberland to total land, the lower the roadbuilding cost per unit of volume harvested. The same is true for the ratio of timberland to forest land within the inventory unit. The greater the volume of timber per unit of area, the lower will be roadbuilding costs and the lower will be yarding costs.

The proportion of softwood growing stock to hardwood growing stock is also important. For interior Alaska, a ready outlet exists for softwood timber but not for hardwoods. Taken together, these operability factors provide a general comparison of harvesting costs per unit of volume among different areas.

Following is a brief summary for each of the timber supply regions identified in figure 1. Timber inventory data and information from past studies, reports, and articles are summarized for each region.

Tanana Valley

The area of the Tanana Valley inventoried has a total of 2.3 billion cubic feet of growing stock on timberland; 1.4 billion cubic feet of this is softwood timber (van Hees 1984). The larger volumes per acre and greater proportion of softwoods are in the Upper Tanana inventory block. Net volume of growing stock in the Fairbanks inventory block is almost evenly divided between softwoods and hardwoods. In the Kantishna and Wood-Salcha inventory blocks, softwoods make up 54 percent of the growing-stock volume on timberland.

Table 1—Area and growing-stock volume on timberland for selected timber supply areas in Interior Alaska

Inventory block	Area			Growing-stock volume on timberland	
	Forest land	Timberland	Total area	Hardwood	Softwood
	----- Thousand acres -----			Million cubic feet	
Tanana Valley:					
Upper Tanana	2,802.9	396.2	3,602.8	103.8	424.9
Wood Salcha	3,408.9	626.3	4,090.9	364.1	435.3
Fairbanks	2,566.9	748.0	3,101.0	283.5	294.3
Kantishna	2,546.0	424.2	2,944.2	168.8	198.5
Total	11,324.7	2,194.7	13,738.9	920.2	1,353.0
Kuskokwim	874.3	52.5	1,168.2	95.4	247.6
Susitna Valley:					
Beluga	648.4	131.7	3,739.7	35.8	63.6
Talkeetna	1,799.3	562.1	5,622.9	449.4	125.3
Upper Susitna	1,141.7	112.1	5,667.5	173.3	11.3
Willow	621.3	230.2	978.5	177.5	54.4
Total	4,210.7	1,036.1	16,008.6	836.0	254.6

Source: Carroll and others (1985), Hegg (1975b, 1982, 1983), Hegg and Sieverding (1979), Mead and others (1985), Setzer and others (1984a, 1984b), Winterberger (1983).

Table 2—Operability factors for selected areas in Alaska

Supply area	Ratio of timberland to total area	Ratio of timberland to forest land	Growing stock on timberland			Ratio to total area
			Net volume per acre		Annual growth	
			Softwoods	Hardwoods		
----- Cubic feet -----						
Tanana Valley:						
Upper Tanana	0.11	0.14	1,072	262	28	147
Wood Salcha	.15	.18	695	581	32	191
Fairbanks	.25	.29	393	379	27	193
Kantishna	.14	.17	468	398	23	121
Kuskokwim	.21	.29	981	378	18	285
Susitna Valley:						
Beluga	.04	.20	483	272	11	30
Talkeetna	.10	.31	70	952	24	102
Upper Susitna	.02	.10	101	1,546	12	33
Willow	.24	.37	236	771	32	242

Source: Carroll and others (1985), Hegg (1975b, 1982, 1983), Hegg and Sieverding (1979), Mead and others (1985), Setzer and others (1984a, 1984b), Winterberger (1983).

Several major roads transect the Tanana Valley. These include the Alaska, Elliott, Glenn, Parks, and Steese Highways. The Alaska Railroad links Fairbanks with the ports of Anchorage, Seward, and Whittier. The Tanana River flows the length of the valley, and most of the softwood growing stock is close to the Tanana River and its tributaries. Since the 1940's, the only commercial barge traffic on the river has been between Nenana and the Yukon River. Above Nenana, the Tanana River is swift and in many areas has multiple, shallow channels. The U.S. Army Corps of Engineers suggests that the Tanana River is navigable by shallow draft (4-foot), flat-bottom vessels and barges from the mouth to Nenana and by smaller rivercraft to the Chena River and up the Chena to the University Avenue Bridge in Fairbanks (Gray 1980) .

Most of early-day Fairbanks was built with local timber. In 1910, Kellogg reported two mills with a combined production of 40,000 board feet daily operating in the Fairbanks area with local white spruce timber. Much of this timber was floated down the Chena and Salcha rivers (Lutz 1963) .The majority of the softwood timber currently being harvested is coming from the Fairbanks area. Full-time sawmills are operating, however, in the Delta Junction, Nenana, and Tok areas.

Plans for a mill complex capable of cutting and kiln drying 10 million board feet annually were developed for Fairbanks in the early 1960's. A report on the proposed mill cautioned that success of the operation hinged on continued high freight costs on shipped-in lumber (Hallock 1962a). This proposed mill was never built.

Susitna Valley

The Beluga, Talkeetna, Upper Susitna, and Willow inventory blocks make up the portion of the Susitna timbershed covered in this report. Area and volume statistics for these blocks are shown in table 1. Only 6 percent of the total area in these blocks is classified as timberland. Hardwood growing stock on timberland amounts to five times the volume of softwood growing stock on timberland.

An inventory of the Susitna Valley conducted in 1964-65 included only 5.6 million acres or 35 percent of the most recent inventory (Hegg 1970) .This early inventory, however, reported more timberland than the most recent inventory, although it contained only 35 percent as much total area. This may be a result of different sampling methods or the nature of the timber resource in this inventory unit and throughout interior Alaska. Potential tree growth on much of the timberland in interior Alaska is close to the minimum growth rate of 20 cubic feet per acre per year for classification as timberland. Different samples can result in substantial differences in the quantity of timberland reported even though differences in annual growth rates are small.

The hardwood resource has been considered for development many times since settlement began in the early 1900's. One study suggested that annual cuts of 9 million board feet of paper birch and 6 million board feet of cottonwood could be harvested from accessible stands in the Susitna Valley (Massie 1966) .In the early 1960's, a sawmill with a capacity for processing 20,000 board feet of hardwoods per day was operating (Hallock 1962b) .This mill, however, closed after a short time. Small amounts of hardwoods and spruce are currently harvested for local use. The most recent Alaska forest industry directory lists more than two dozen sawmills operating in the Susitna Valley (Alaska Department of Natural Resources, Division of Forestry 1983) .These mills are all very small.

This region is close to the major markets for lumber in Alaska and is transected by the Glenn and Parks Highways and the Alaska Railroad. Access to timber other than that which is close to these transportation routes remains difficult.

Kuskokwim Valley

The 1967 comprehensive inventory of all the land in the Kuskokwim region reported 2.6 million acres of timberland (Hutchison 1967). Fieldwork for a more intensive inventory of the productive forest areas close to the river was completed in 1967. This inventory reported 252,500 acres of timberland containing a net growing-stock volume of 343 million cubic feet (Hegg and Sieverding 1979). Most of the timberland and timber volume are in the Upper Kuskokwim Valley (above Sleetmute). Most residents of the Kuskokwim Valley live in the Lower Kuskokwim rather than the Upper (10,252 versus 2,740 in 1984). The five western coastal census divisions north of the Aleutian Chain are expected to grow from a population of 33,683 in 1983 to 41,382 by the year 2000 (Reeder and others 1983). These areas could potentially be supplied by forest products produced in the Kuskokwim Valley.

The Kuskokwim Valley has been under repeated study for forest product industry development since 1969. The Federal Field Committee, which coordinated construction of some 200 homes in Bethel, requested the Kuskokwim Forest Resource Committee to explore the possibility of linking the forest products industry of the Kuskokwim to the Bethel Housing Project (Clapp and others 1969). Among factors that apparently stymied efforts to use more local timber in the housing project were: (1) the land freeze in connection with the then pending Alaska Native Claims Settlement Act of 1971, (2) inadequate river transportation, and (3) failure to incorporate product specifications that Kuskokwim timber suppliers could meet (Clapp and others 1970).

The Kuskokwim Forest Resource Committee requested a study of local market demand for timber products. The study was completed in 1970 (Koweluk 1970). The study found an annual consumption of 2 million board feet of lumber in the Kuskokwim area, but only 400,000 board feet of this was produced locally (these data excluded lumber consumption by the military and other government agencies).

A study of forest products industry potential of the Yukon-Kuskokwim River area was requested by the USDA Forest Service, Alaska Planning Team, in the mid-1970's. The study compared interior Alaska with northern Minnesota and drew the general conclusion that interior Alaska has the potential for a sizable forest industry that could supply local needs as well as export products (Zasada 1976).

In 1980, a consulting firm investigated the business potential of the forest resource in the middle Kuskokwim area. This study considered three business options: (1) log export; (2) a sawmill in Bethel exporting rough, green material; and (3) a small sawmill cutting rough lumber for the local market. The study concluded that none of the three options was economically viable at that time, but an export operation could be viable within 10 years (Hammons 1981). A followup study concluded that a small sawmill (600 thousand board foot measure) operating near the timber supply and selling products to the Bethel market would be profitable (Kilborn and others 1981).

In spite of the interest and past studies, very little lumber is produced in the Kuskokwim Valley. Only one mill has consistently operated in recent years, and it produces less than a half million board feet per year.

White spruce accounts for 72 percent of the net growing-stock volume and 88 percent of the net sawtimber volume on timberland. Net annual growth of white spruce on timberland amounts to 3.1 million cubic feet of growing stock and includes 19.7 million board feet of sawtimber. Balsam poplar is the predominant hardwood of sawtimber size with a net volume of 6.8 million board feet on timberland. Paper birch has a net volume of 563.5 million cubic feet of growing stock on timberland. Transportation is a major obstacle to forest products industry. Roads exist only in the immediate vicinity of villages.

Kenai Peninsula

This region includes only the western part of the Kenai Peninsula and amounts to 5.7 million acres. Of this, 2.1 million acres are in forest land, and 1.5 million acres, or 26 percent of the total land area, is timberland (Hutchison 1967). A subsequent study estimated less than 500,000 acres of timberland (Ryan 1982). The eastern half of the Kenai Peninsula includes the Chugach National Forest, which is managed under its own management plan and is not included in this study (USDA Forest Service 1984).

The Kenai National Wildlife Refuge occupies more than 1.9 million acres of the remaining area, including more than 166,000 acres of timberland (Ryan 1982). The selected management plan for the refuge would allow timber and firewood harvest on an area of 263,000 acres (U.S. Department of the Interior, Fish and Wildlife Service 1985a). The final plan and record of decision (U.S. Department of the Interior, Fish and Wildlife Service 1985b) recognize the usefulness of timber harvest as a means of manipulating vegetation for moose management but include no suggested or planned harvest levels.

The Alaska Department of Natural Resources has more than 89,000 acres of timberland not withdrawn from timber harvest (Ryan 1982). Projected timber harvest from this land is 2 million board feet per year with current road access. The University Trust Lands and Kenai Peninsula Borough add another 28,000 acres of timberland (Taiga Resource Consultants 1986).

The land holdings of four Native corporations total more than 90,000 acres of timberland on the Peninsula. The timberland holdings of three additional Native corporations on the Peninsula have not yet been determined. The Native corporation lands on the west side of the Kenai Peninsula contain more than 1 billion board feet of sawtimber (Ryan 1982). A mill capable of sawing 35,000 board feet per day in the Anchor Point area ceased operation in 1984, partly because of inexpensive Canadian construction lumber. The remaining operating sawmills are small (under 5,000 board feet per day).

Copper River

The field inventory for the Copper River unit was done in 1968 (Hegg 1975a). This inventory covered only the areas close to the Chistochina, Chitna, Copper, Gakona, Gulkana, Klutina, Tazlina, and Tonsina Rivers. About 600,000 acres of the original inventory unit were set aside as the Wrangell-St. Elias National Park and Preserve by the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. The remaining portion has 154,600 acres of timberland with a net volume of about

134.1 million cubic feet of growing stock that includes 482.6 million board feet of sawtimber. Most of the sawtimber is white spruce. The Edgerton, Glenn, and Richardson Highways and the Tok Cut-Off provide general road access.

Upper Yukon

The Upper Yukon area encompasses a total land area of almost 37 million acres. This includes 22.6 million acres of forest land, of which 4.9 million acres are timberland (Hutchison 1967). A timber resource inventory of 8.9 million acres of the Black River, Porcupine River, and Sheenjek River timbersheds was completed in 1977 and 1978 (Setzer 1987). A similar inventory covered 8.2 million acres including parts of the Charley, Kandic, and Yukon River timbersheds in 1980 (van Hees, in press). Together, these inventories estimated that more than 2 million acres of timberland exist in the Upper Yukon. This timberland averages only 1,200 board feet of sawtimber per acre.

Much of this land is now in National Wildlife Refuge, National Park, and National Preserve status. More than 22 million acres of land in this area was set aside by ANILCA in 1980 for these special conservation uses. Management plans are still being developed, but apparently only a small area will be available for timber harvest. The Venetie Indian Reserve contains 1.8 million acres. Seven other Native villages have land entitlements of 668,160 acres (U.S. Department of the Interior, Bureau of Indian Affairs 1978). Doyon, Ltd. (a Native regional corporation) land selections total more than 1 million acres (U.S. Department of the Interior, Fish and Wildlife Service 1987). Most of these owners do not know how much forest land and timber they own. A forest inventory was completed for lands of Fort Yukon village within one-half mile of the Yukon and Porcupine Rivers (Zufelt 1984). The inventory included 85,155 acres, but almost 32,000 acres of this was water and more than 13,000 acres were nonforest land. The annual allowable harvest for forest land was estimated to be 185,000 cubic feet or 835,000 board feet.

Lower Yukon

The lower Yukon region delineated by Hutchison (1967) contains a total land area of nearly 45 million acres. More than 30 million acres of this qualified as forest land, but only 4.2 million acres as timberland. About 16.7 million acres within this region was set aside by ANILCA as National Parks and National Wildlife Refuges. Native village holdings total more than 1.5 million acres. Twelve small sawmills are reported to be within this area (Alaska Department of Natural Resources, Division of Forestry 1983).

In 1971, a forest inventory was conducted on 741,710 acres of the Upper Koyukuk River, which lies within the Lower Yukon region. The 34,839 acres of commercial forest land in this inventory unit averaged only 2,500 board feet per acre (Hegg 1974).

Investigation of markets for lumber from the lower Yukon was done in conjunction with the Kuskokwim Valley (Koweluk 1970). In a report on the lumber potential of the middle Yukon, Brady (1971) concluded that harvesting and milling of timbers and dimension lumber could be conducted at costs equal to or slightly higher than costs of importing these products.

Limiting Factors

Factors that affect the current and future availability of timber from interior Alaska are the ownership patterns and the cost competitiveness of locally produced products.

Ownership and Dedicated Use

As was already mentioned in the discussion of individual timber supply areas, current ownership and use designation eliminate timber harvest as a major activity on many areas. For example, designation as National Park or Preserve or National Wildlife Refuge generally precludes any future timber harvest. Before 1958, almost 300 million acres of Federal land in Alaska were not reserved for special purpose. Through legislation passed in 1958, 1971, and 1980 that figure will ultimately be reduced to 45 million. The land transfers from Federal to State and Natives are still in process. The 1958 Alaska Statehood Act granted the State 104 million acres. The 1971 Alaska Native Claims Settlement Act awarded Alaska Natives 44 million acres. The 1980 Alaska National Interest Lands Conservation Act added 104 million acres to national parks, wildlife refuges, and monuments (fig. 2).

With the exception of remote lands perceived to have high resource value, State-owned lands are concentrated along the transportation network (fig. 3). Because of selection requirements, Native-land selections are concentrated around existing villages, and most are far from the existing road and railroad network. Ownership and use designation in relation to forestry and potential timber harvest in interior Alaska are summarized below.

Federal—Most of the 45 million acres of Federal public-domain land that will remain after completion of State and Native selection are located far from existing land-transportation networks. The State did not select these lands because the State perceived other lands to have higher value. Neither the area of these lands that is forested nor the timber volumes on these lands are known. At this time, no areas have been planned for timber harvest or forest management. Some of the Federal lands close to Native or other villages may furnish firewood and saw logs for local use under agreement with the U.S. Department of the Interior, Bureau of Land Management.

State—Most of the lands selected by the State are along the transportation network or were perceived to have high potential value for oil or mineral development (fig. 3). The State is transferring about 770,000 acres to municipal and borough governments (Leask 1985). The State has some legislatively designated land-use categories such as State parks, forests, game refuges, sanctuaries, and critical habitat areas. For areas not in these special categories, the Alaska Department of Natural Resources classifies land under a system that designates primary uses but does not prohibit other uses. These classifications are reviewed annually and can be changed. Because of possible changes in classification, little incentive exists for the Alaska Division of Forestry to make forestry investments in land that has not been legislatively designated for forestry.

In the Tanana Valley, virtually all efforts of the Division of Forestry, except fire protection, are on the legislatively designated Tanana Valley State Forest. In the Copper River Valley, the Kuskokwim Valley, and the Susitna Valley, and on the Kenai Peninsula, the Division has a timber-sale program, but no long-range plans, harvest schedules, or road access plans. Sales for fuel, house logs, and saw logs are in response to local requests.

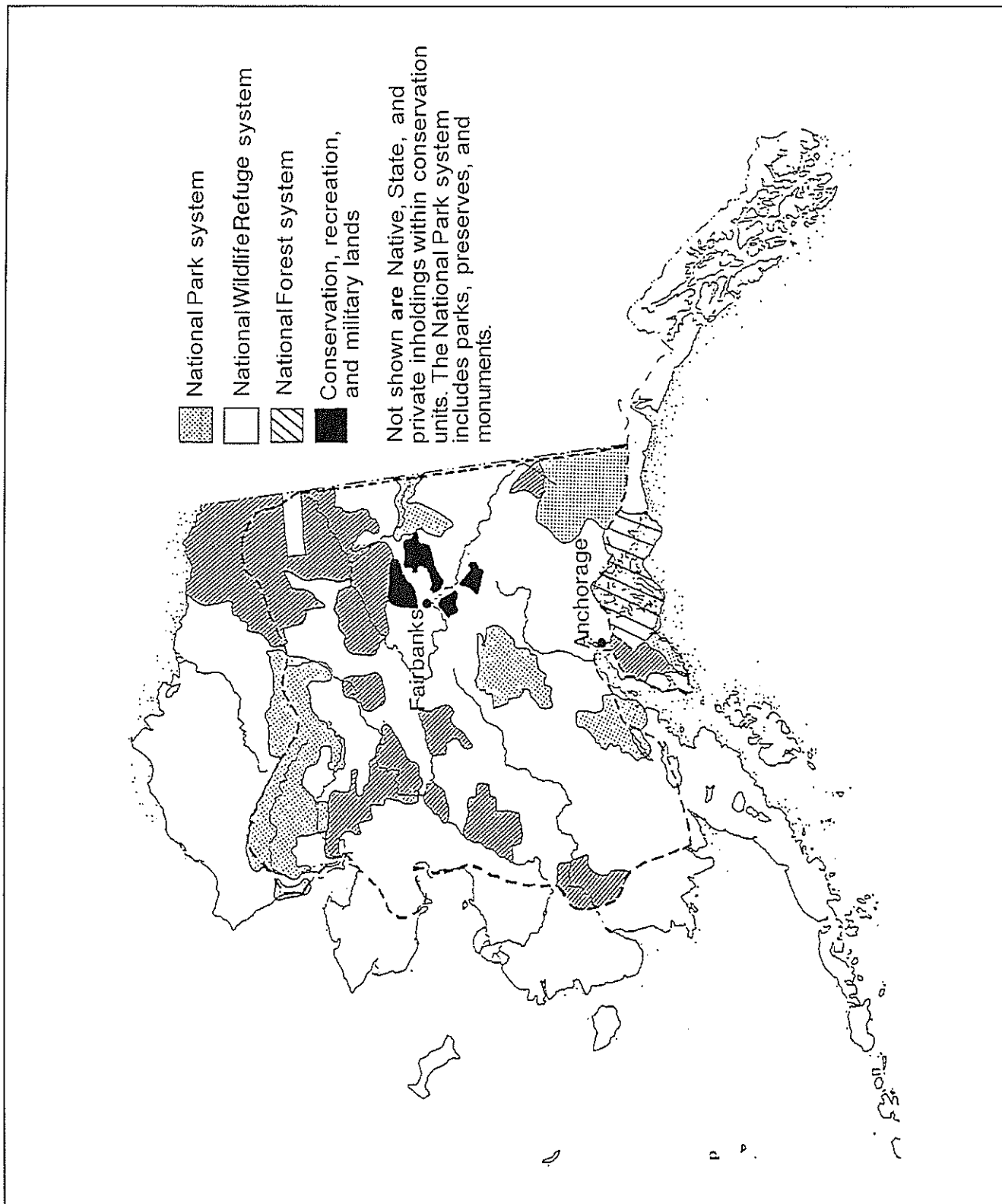


Figure 2—National conservation, recreation, and military lands in interior Alaska.

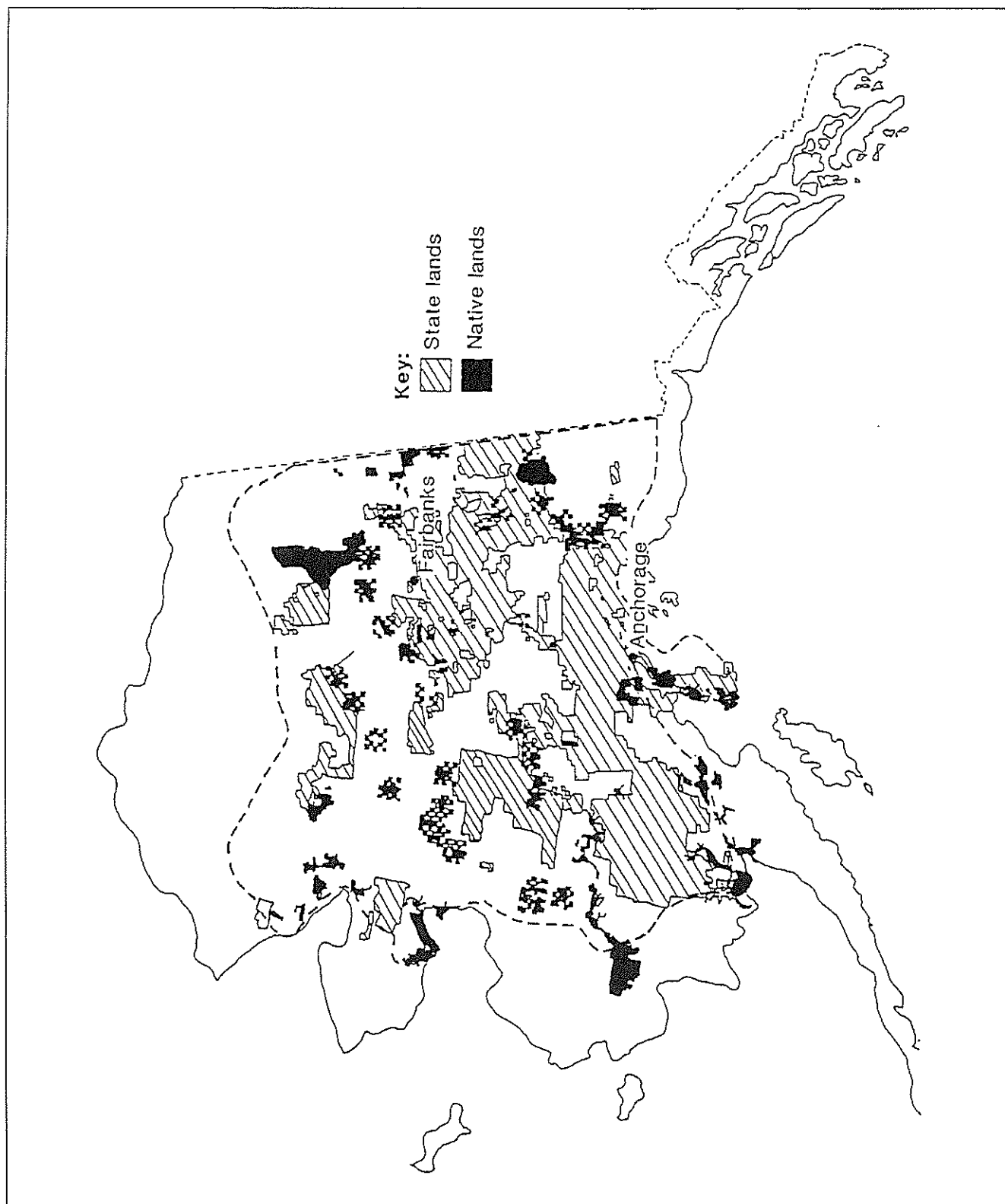


Figure 3—State government and Native corporation lands, 1985.

Native--Alaska Native Claims Settlement Act of 1971 (ANCSA) provided that Native villages receive three to seven townships depending on population (U.S. Department of the Interior, Bureau of Land Management 1980). The Native regional corporations were also given land entitlement by ANCSA. The Ahna, Cook Inlet, and Doyon Regional Corporations lie wholly within interior Alaska. These three corporations will eventually hold title to about 11 million surface acres. (The regional corporations also have the subsurface rights to Native village-owned lands within their respective regions.) Native-village holdings within the boundaries of the three corporations will total about 4.8 million acres. No estimates exist of the proportion of these lands that are forested or of timber volumes present. Individual Alaska Natives can claim up to 160 acres of land under the Native Allotment Act of 1906 in instances in which they can show use prior to 1971. Alaska Natives could receive title to as much as 1.2 million acres under the allotment program (Leask 1985). In addition to the above lands, there are two Indian reserves: the Venetie Reserve, which covers 1.8 million acres; and the Tetlin Reserve, which covers 743,000 acres. Approximate locations of Native lands within interior Alaska are shown in figure 3.

Many Native villages have small sawmills. None of these are known to be operating full time; most operate occasionally to provide lumber or house logs for local use. None are known to be producing sawn lumber or logs for export. In the past, logs from the Toghothele Corporation (Native) were exported from Nenana via the Alaska Railroad to Seward.

Native lands have the scattered sawtimber stands and low volumes per acre typical of interior Alaska (Hanson 1984, 1985; Maisch 1984; Zufelt 1984). The low volumes limit opportunities for road construction to harvest and manage timber; and for most Native lands, export opportunities are limited because transporting logs or sawn products away from the immediate environs is difficult (Hammons 1981). The best immediate opportunities for timber harvest and forest management may be on the west side of the Kenai Peninsula where there are large contiguous tracts of timber (Sampson and others 1983).

Other Private--Private-landownership, other than Native villages or corporations or individual Native allotments, in interior Alaska is less than 1 percent of total land area. In 1985, an estimated 1.35 million acres in private holdings existed in the entire State (Leask 1985). Before Alaska became a State in 1959, all except 65 million acres were open to homesteading, mining, and other uses. An estimated one-half million acres were privately owned in all of Alaska in 1958. Additions to private holdings since then have come from land-disposal programs by the Bureau of Land Management, the State, and boroughs. State land-disposal programs, mainly for homesteads and agriculture, still occur. These disposal programs will not result in much change in forestry potential on private lands. The largest areas are for agriculture, and clearing of a portion of such land within a prescribed time is required for most disposals.

Production Costs

A number of factors affect economic productivity of softwood products in interior Alaska and their ability to compete with the Pacific Northwest and western Canada firms for local and export markets. Interior Alaska timber has not consistently competed in export markets. Pulp chip exports endured for only a few years as did white spruce log exports from Nenana.

For rough softwood lumber consumed in interior or northern Alaska, Interior producers have had an advantage over an equivalent imported product (or imported dry, surfaced lumber). Some Alaska mills also produce dry, surfaced lumber for local sale. Some local retailers, who also operate sawmills, recognized an advantage in importing dry, surfaced lumber instead of producing it themselves in about 1983. This change was in part because of a steady gain in strength of the U.S. dollar against the Canadian dollar and the resulting advantage to Canadian lumber exports. The exchange rate of Canadian dollars to U.S. dollars increased from \$1.14 in 1978 to \$1.37 in January 1987.

Direct cost comparisons between softwood lumber produced in interior Alaska and lumber of comparable quality produced in the lower 48 States and Canada are not possible. Adequate cost data for harvesting, milling, drying, and planing are not available for interior Alaska. Sawmills in the lower 48 States and Canada typically produce a wider range of products, and the prices for dimension lumber and rough timber, the typical Alaska sawmill products, are not comparable to Alaska prices.

Some general inferences can be made about the price competitiveness of softwood lumber from interior Alaska. Lumber price is based on the sum of stumpage, harvesting, log hauling, log storage, milling, lumber drying and planing, marketing, lumber transport, and overhead costs less value of by-products. Only two cost components potentially provide interior Alaska producers an advantage over the lower 48 States and Canadian producers: stumpage costs and lumber transport costs.

Stumpage prices in interior Alaska are lower on a volume basis because stumpage price is typically derived by subtracting all costs from product value. Harvesting and milling costs are a function of technology used in conjunction with timber and terrain characteristics, as well as labor and energy costs. Interior Alaska's timber and terrain have a disadvantage relative to other softwood-timber-producing areas. The individual trees are small and not of high quality. Volumes harvested per acre are small, and harvestable stands are widely scattered. Access roads are generally lacking; and when permafrost soils and boggy areas must be crossed, roadbuilding costs are high.

Unit costs for labor and energy in interior Alaska are generally higher than in all areas in the lower 48 States. Canada has higher energy costs in some areas than Alaska, but labor costs are lower.

Use of high technology allows substitution of fixed-equipment costs for labor (and sometimes energy) to lower total per unit cost. Invariably, the most efficient technology is associated with high levels of production; therefore, the largest producers are the most efficient. In Oregon, for example, sawmills capable of producing 120,000 board feet or more per shift increased their share of the total log volume sawn from 48 percent in 1968 to 89 percent in 1982 (Howard 1984). Individual interior Alaska mills cannot get long-term commitment of a sufficient volume of timber to justify investment in higher technology, and this is one reason they are less efficient.

Future Cost Competitiveness of the Interior

Lumber produced in interior Alaska has a cost advantage for shipping to Alaska railbelt markets and a potential (but unrealized) advantage for shipping to China, Japan, Korea, and Taiwan. Instate shipments by truck or rail to the railbelt from within the Interior cost \$10 to \$50 per thousand, whereas out-of-state shipments cost \$60 to \$120 per thousand, depending on product and species (Knapp and Foster 1986). The potential advantage for shipping from interior Alaska to the northern Pacific Rim countries has not been developed because the volume is insufficient to justify full ship loads directly from Alaska. Instead, small amounts are shipped via Seattle which adds extra handling as well as extra shipping distance.

Interior Alaska mills are competitive with out-of-state mills for small timbers (less than 12 inches) and rough lumber for local use. Dry, planed and graded lumber consumed in Alaska, however, is provided almost entirely from outside Alaska. Production of dry, planed and graded softwood lumber from the interior will probably require the addition of dry kilns which, in turn, require larger annual production for individual mills and, hence, greater timber supplies.

The problems of establishing economically viable forestry operations in interior Alaska are demonstrated by recent efforts to expand the operable timber base in the Tanana Valley. In 1983, the Alaska legislature designated 1.8 million acres in the Tanana Valley as the Tanana Valley State Forest. This forest includes State lands previously designated for forest management and stretches the entire length of the Tanana Valley, about 280 air miles in length.

A management plan for the Tanana Valley State Forest is now being prepared by the Alaska Department of Natural Resources. Preliminary planning indicates that harvested areas would have to return \$257 per acre for white spruce types and \$153 per acre for hardwood types to cover the costs of secondary roads and reforestation (Alaska Department of Natural Resources, Division of Forestry 1987). The cost of all-season secondary roads is estimated to be \$115 per acre and reforestation cost at \$142 per acre for spruce stands and \$38 per acre for hardwood stands. With assumed stumpage returns of \$36.87 per thousand board feet for spruce sawtimber and \$10.95 per hundred cubic feet for mixed-species fuelwood, only 254,000 acres (or 14 percent of the Forest area) are potentially harvestable if spruce sawtimber is the product sought. If only spruce and spruce-hardwood types are considered, 20 percent of the area is operable, given the cost and return parameters above.

The major question affecting the feasibility of increased production of softwood lumber in interior Alaska for local use is whether it can be cost competitive with lumber from the Pacific Northwest and British Columbia. The current Canadian advantage, caused by a favorable exchange rate, may disappear in the future because of changes in the exchange rate or changes in the cost of production factors in Canada. Lumber from the Pacific Northwest continues to be imported to the railbelt area. Interior Alaska cannot significantly increase production under the current mode of operation.

Processing Alternatives

The physical nature of interior Alaska timber stands results in high road and harvest costs per unit of volume. High volume (more than 15,000 board feet per acre) sawtimber stands are widely scattered and each stand occupies a small area (Hegg 1975b). If 800 cubic feet or more of growing stock per acre is used as a prerequisite for identifying harvestable forest land, only a small proportion of inventory units in the Kuskokwim, Susitna, and Tanana Valleys are harvestable (fig. 4). Spruce timber constitutes the majority of the growing-stock volume on timberland in the Kuskokwim and Tanana Valleys. Hardwoods make up most of the growing stock volume in the Susitna Valley (fig. 5).

The hardwood growing stock is relatively small in the Kuskokwim and Tanana Valley inventory units, and spruce makes up nearly all of the sawtimber volume on timberland (fig. 6). In the Susitna Valley units, most of the sawtimber volume on timberland is cottonwood (including balsam poplar) and paper birch.

Industry expansion alternatives--One alternative for increasing production of softwood lumber in the interior Alaska is to increase the number of small sawmills. For example, 500 small sawmills each producing 4,000 board feet per week would produce 100 million board feet in a year if each were operated 50 weeks. The other extreme would be five sawmills each producing 400,000 board feet per week. Production of 400,000 board feet per week is not exceptionally large for sawmills in the Pacific Northwest, British Columbia, or southeast Alaska. In southeast Alaska where nearly all output is exported, combined production of the two largest sawmills averaged more than 2 million board feet per week in 1984 (USDA Forest Service 1986). Problems inherent with either of the two extremes described above are discussed in the following sections.

Expansion of current system of small sawmills--If 500 sawmills each produced 4,000 board feet per week, 167 timber sales averaging 600,000 board feet would be required per year to supply them. The Alaska Division of Forestry had 26 commercial saw-log sales in the interior in 1984. These sales included 8.9 million board feet of saw logs (Scribner scale) or less than one-tenth of softwood lumber consumption in Alaska in high-use years.

Drying, planing, and grading are major problems if a large volume of lumber is produced by many small sawmills. Nearly all the softwood lumber imported to Alaska is planed and graded. If locally produced lumber is to be substituted for these imports, it will also have to be planed and graded. Some of interior Alaska's small mills have planers; most do not have dry kilns. Mills with low production cannot economically have kiln drying and lumber grading capabilities. Both fixed costs and operating costs decrease per unit of volume from the smallest kilns to the largest kilns (Rosen 1980, Shottafer and Shuler 1974). Each mill that is a member of an existing lumber-grading agency must pay a periodic cost of certifying their grader(s) as well as an assessment based on volume graded.

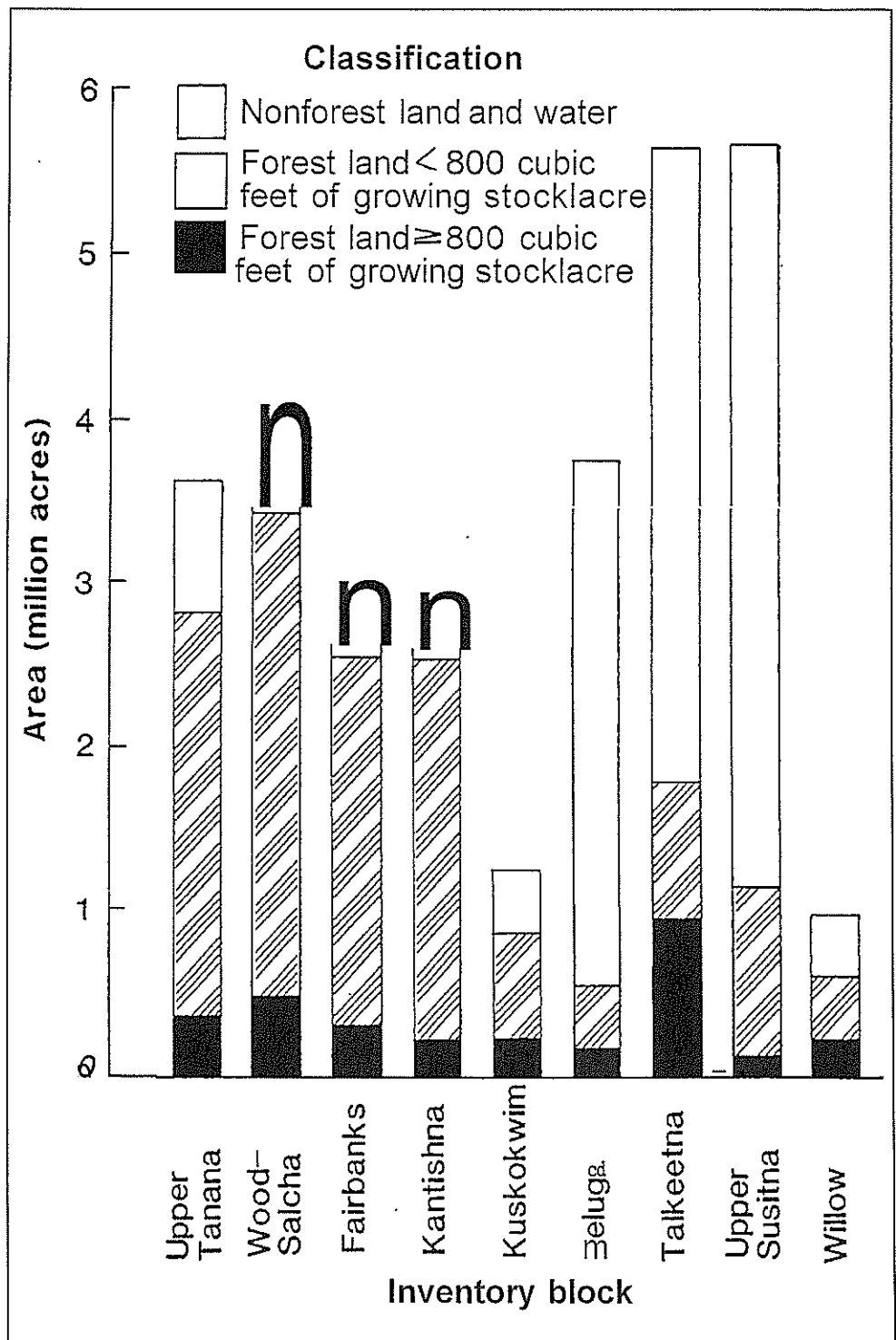


Figure 4—Land area by land class for inventory blocks in the Kuskokwim, Susitna, and Tanana Valleys.

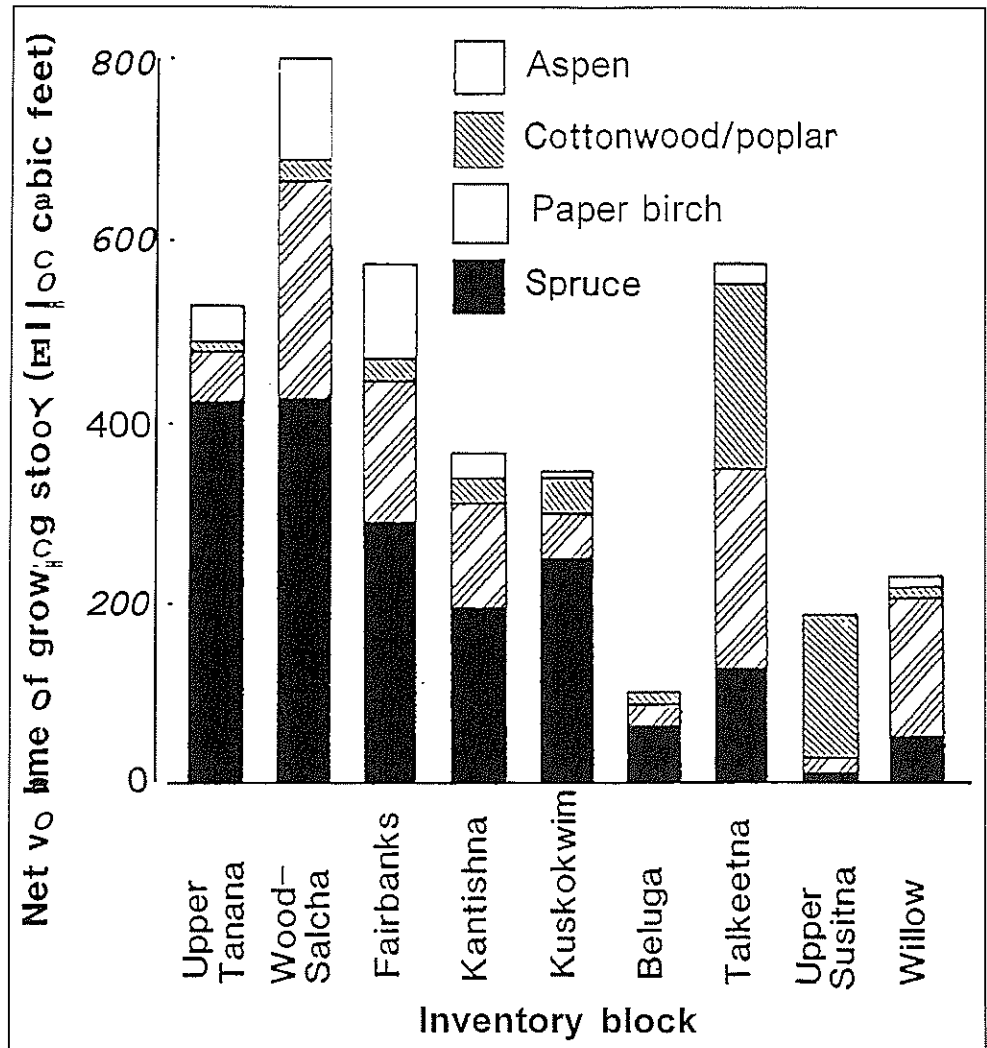


Figure 5—Growing stock on timberland by species for inventory blocks in the Kuskokwim, Susitna, and Tanana Valleys.

The output from individual sawmills could be pooled at a concentration yard where lumber could be dried, planed, graded, and marketed. This would permit economies of scale in drying, planing, grading and marketing, but additional handling costs would be incurred. The lumber concentration yard could be independent or could be a co-operative effort. In either case, the individual sawmills would have to be able to sell their rough production to the concentration yard at an advantage over the open market.

Access to timber is a problem regardless of whether future lumber production is by many small mills or a few large ones. The option of the timber buyer building roads is essentially eliminated for small volume buyers. During the 1980's, virtually all commercial timber harvesting in interior Alaska has been done from the existing road system. The only roadbuilding that has been required on State timber sales has been onsite, although these roads often provide access to a future timber sale. The 5-year harvest plan submitted in May 1985 for the northern region of the Alaska Department

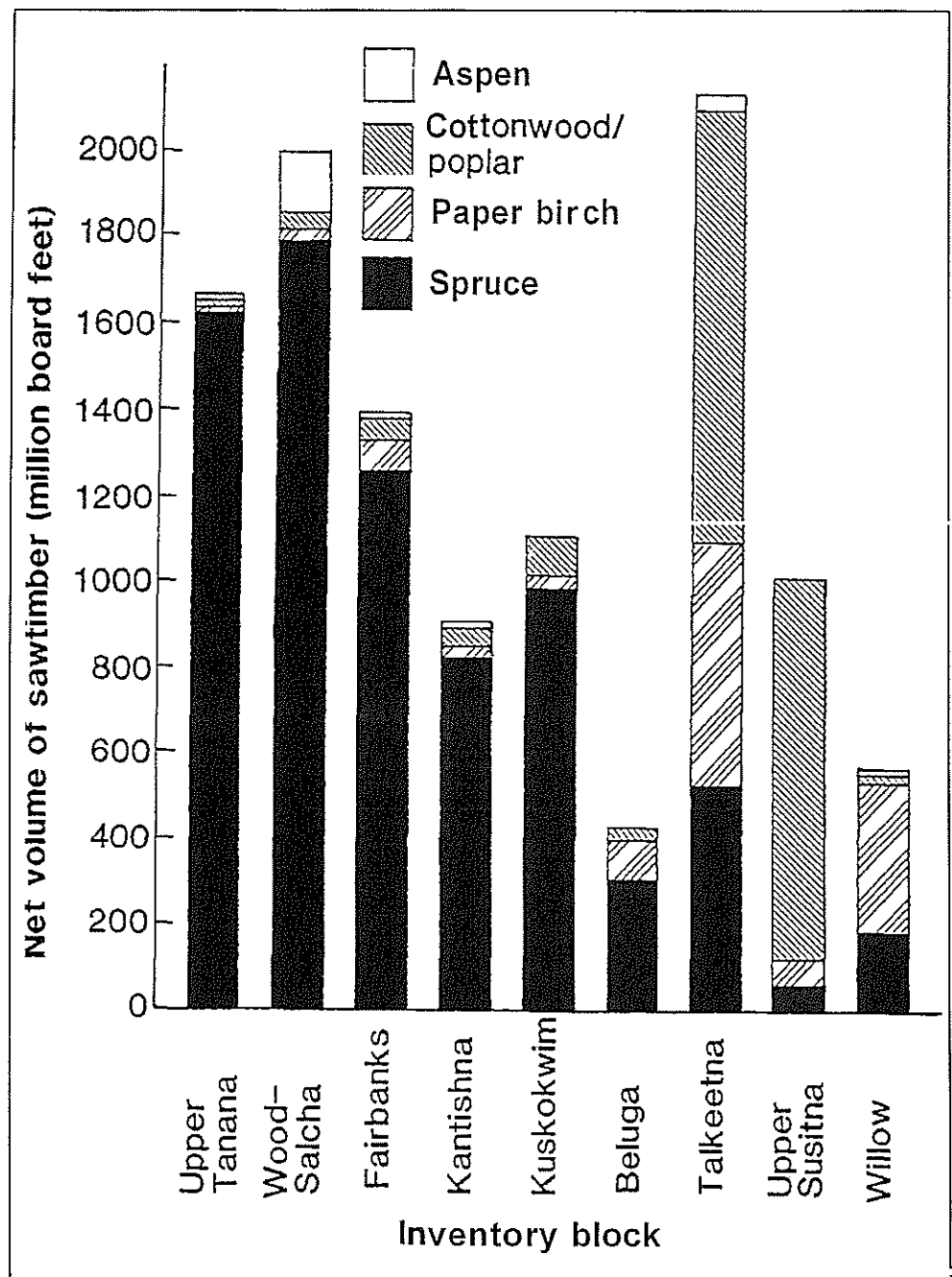


Figure 6—Sawtimber on timberland by species for inventory blocks in the Kuskokwim, Susitna, and Tanana Valleys.

Department of Natural Resources, Division of Forestry required building 16.5 miles of new road. This small amount of roadbuilding indicates that the lands now designated for forest management are close to the existing road system.

Large sawmill **alternative**--If most of the future softwood lumber consumed in Alaska were to be produced by a few large mills (400,000 board feet per week or 20 million board feet per year), major modifications would probably have to be made in the size of timber sales offered. Thirty-three sales of 600,000 board feet each would be required to meet the annual timber needs of one of these mills. A large mill would have to devote major effort to evaluating timber sales and bidding on them if the policy of small volume sales were continued. Given the existing road system, a large mill would have to get much of its annual supply of timber from nonroaded areas.

The area formerly designated as the Fairbanks Working Circle includes all State lands classified as forest management and resource management lands within about a 60-mile radius of Fairbanks. Of the 700,000 acres of State-owned land within this working circle, 242,500 acres, or 35 percent, were classified as commercial forest land (timberland). The determined annual allowable harvest of white spruce sawtimber for the Fairbanks Working Circle is 4.1 million board feet (Wieczorek 1980). Allowable harvests from State-owned lands in the Delta Junction and Tok areas (both within the Tanana Valley) have not been established, but planned annual harvests are about 1.5 million board feet and 500,000 board feet, respectively.³ The Fairbanks Working Circle and previously managed land near Delta Junction and Tok are included in the Tanana Valley State Forest created in 1983. The management plan for this forest has not been finalized, but preliminary planning indicates an average annual harvest of 9.6 million board feet of spruce sawtimber--far below annual requirements of a "large sawmill."

Harvesting Alternatives

The net annual growth of the Tanana Valley's softwood sawtimber is about 50 percent greater than the State's annual consumption of softwood lumber. Road access to this timber, however, is generally lacking. One possibility is to take advantage of roads that may be built for mineral development to access harvestable timber where possible. Near-future road development is not likely to be swift or extensive (for example, see Louis Berger and Associates 1982). If timber harvesting is to proceed at a faster rate than road development, special methods will have to be used to move timber from the stump to the existing road system or to industrial sites. Possible ways of doing this include: (1) winter roads and (2) log rafts or barges on rivers.

Winter roads--Winter roads and ice bridges could be used for access to timber. A winter road is essentially a cleared path where vehicles are supported by the frozen condition of the substrate rather than by compaction (Lotspeich and Helmers 1974). The period when such roads are usable varies from year to year and by location. In the Fairbanks area, normal daily high temperatures drop below freezing around October 20 and do not rise to the melting point until the end of March. Generally, mid-November to the end of March is the possible period for travel on winter roads. Logs can be hauled by truck over such roads, but large loads hauled by rubber-tired skidders at speeds of 5 to 10 miles per hour might work better. In the "horse-hauling" days, two-horse teams hauled sled loads containing as much as 4 cords into Fairbanks for fuel (Alaska Geographic Society 1985).

³ From Alaska Division of Forestry's northern region five-year harvest plan, May 1985.

An interior Alaska transportation study used a figure of \$13,000 per mile for winter roads 26 to 40 miles long (Louis Berger and Associates, Inc. 1982). Each road segment carried an annual cost of \$4,000 or \$100 to \$160 per mile for maintenance. The Division of Forestry (Alaska Department of Natural Resources 1987) estimates that costs for secondary roads could be reduced from \$115 to \$41 per acre if temporary winter roads were used.

Log rafts and barges--An alternate to roads for hauling timber to the sawmill is water, by use of log rafts or barges. Logs were floated downstream on the Chena and Salcha Rivers to early sawmills in the Fairbanks area. This practice is still used occasionally on the Kuskokwim and Yukon Rivers. Such future operations on a larger scale have also been proposed (Hammons 1981, Marshall 1981). Barges operate seasonally on the Kuskokwim River from Bethel to McGrath and on the Tanana and Yukon Rivers from Nenana downstream to Galena and upstream to Fort Yukon.

Drawbacks of nonroadbuilding alternatives--Use of winter roads or river barging or rafting eliminates costly road construction and maintenance but also presents unique problems. Although winter roads and ice bridges cost considerably less than standard project roads built across similar terrain, winter roads can be traveled only when they are frozen; traveling on these roads and ice bridges too early or late in the season can have expensive and dangerous consequences. The short hauling season for winter roads, at best, requires careful planning to efficiently use harvesting and hauling equipment on both winter roads and roads that provide access for summer logging. Likewise, the rafting and barging season is short in interior Alaska, generally running from late May through August. Only shallow draft barges can be used because of water depths. The absence of conventional access roads makes timber-sale layout and administration more difficult and expensive and complicates harvesting and postharvest silvicultural activity.

Creating an accessible forest--Natural succession with continuing fire protection may result in a slow increase in area of spruce sawtimber over time as some hardwood stands are replaced by white spruce as suggested by Van Cleve and Viereck (1981). The existing timber stand conditions and wood product markets in interior Alaska, however, tend to foster adoption of silvicultural systems that will perpetuate the fragmented spruce stands existing today. The only major markets besides those for fuelwood are for softwood lumber and spruce house logs. A very small proportion of the existing area is occupied by white spruce timber with a high enough volume to be harvested economically.

Planting of harvested white spruce areas or scarification to allow natural regeneration from nearby spruce seed sources may lead to spruce reforestation. Hardwood timber stands that are harvested are most easily regenerated to hardwoods. Regenerating harvested areas with the least expensive methods will limit the area of future white spruce sawtimber to little more than the small amount that currently exists. For example, white spruce sawtimber occupies only 407,169 acres in the Tanana Valley, or 3 percent of the 13.6 million acres inventoried in this unit (van Hees 1984).

Reforestation with white spruce on large contiguous blocks close to the road system would result in a future forest much more economically accessible than the scattered fragments that exist now. At this time and presumably until a white spruce stand established now would mature (80 to 120 years), white spruce on large contiguous blocks close to the road system would be much more valuable than the vegetation that would be replaced. Forest-type conversion to achieve large contiguous blocks of white spruce close to the road system, however, seems unlikely unless the existing biomass can be processed into a salable product.

Electric power generation plants north of the Alaska Range in the Interior consumed an average 710,000 tons of coal per year from 1972 to 1980 (Fairbanks North Star Borough 1980). If green wood could be substituted for 10 percent of the coal at the rate of 2 tons of green wood for 1 ton of coal, an annual market for 142,000 tons of wood would be created. This would provide an outlet for biomass of 3,000 to 4,000 acres annually. Research is in progress on burning wood chips mixed with coal at Fort Wainwright, near Fairbanks. In October 1986, successful burning tests were made with wood chips amounting to 24 percent of the fuel mix. More test burning is planned for 1987, including effects on stack emissions from adding wood to the coal fuel.

Summary and Conclusions

Interior Alaska presents an enigma to those interested in expanding forest industry production. Total annual growth of white spruce sawtimber is more than tenfold current harvest. Alaska's consumption of softwood lumber is more than five times the softwood timber harvest in all the interior. Volumes of 15,000 board feet per acre can be found (Hegg 1975b); however, most of the white spruce sawtimber volume is in widely scattered stands. The existing sawmills have difficulty acquiring sufficient volumes of sawtimber stumpage to maintain their current level of production. Little can be done to improve interior Alaska's competitive position in softwood lumber in the short-run.

In 1977, Zivnuska suggested a possible strategy for the management and use of interior forests.

Here, then, is one scenario for the role of high-latitude forests of Alaska: a planned continuance of current subsistence uses, with the development, in more favorable situations, of a commercial industry serving primarily Alaskan markets. With this would go the maintenance of options to respond in the future to the much more remote and conjectural possibility of a world demand for timber from interior Alaska.

Little has apparently changed in the intervening 10 years, and the scenario also serves well today. At least a dozen full-time commercial mills operate in interior Alaska, providing employment and valuable products for the economy. Most are constrained from investment for major expansion or efficiency improvement by the lack of an assured future timber supply. Entrepreneurs continue to show interest in exporting interior Alaska hardwoods and white spruce to Pacific Rim countries. So far, these apparent "demand" and "timber supply alternatives" have not meshed to provide a sustained operation.

In the long run (80 years or more), major improvements can be made in the timber supply by developing larger contiguous areas of harvestable timber. Conversion of some hardwood and black spruce types to white spruce or lodgepole pine could increase the area and volume in contiguous harvestable stands adjacent to the existing road system. The use of biomass for fuel in existing powerplants could result in enough value recovered to make the conversions economically feasible. Land managers, however, must consider the net benefits before implementing a plan of site conversion.

Metric Equivalents

1 inch = 25.4 millimeters
 1 inch = 0.0254 meter
 1 foot = 0.3048 meter
 1 cubic foot = 0.0283 cubic meter
 1 cubic foot per acre = 0.06997 cubic meter per hectare
 1 square foot (3/8-inch basis) = 0.0929 square meter
 (9.525-millimeter basis)

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Future opportunities for producing Alaska forest products were examined from the perspective of timber supply as reported in timber inventory reports and past studies of forest products industry potential. The best prospects for increasing industrial production of forest products in interior Alaska are for softwood lumber. Current softwood lumber production in the Interior is less than 20 percent of the average annual softwood lumber consumption in Alaska. The dispersed nature of harvestable timber and the attendant poor access are major obstacles to increasing the interior's softwood lumber production. A long-term alternative is to convert hardwood types and black spruce type to contiguous stands of white spruce.

Keywords: Forest products output, *Picea glauca*, white spruce, interior Alaska, Alaska (interior).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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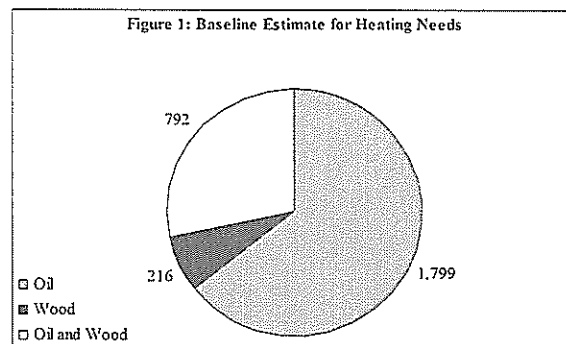
WESTERN ALASKA FIREWOOD ANALYSIS



Introduction and Background

The high cost for heating oil in Bethel, much like many other areas of Alaska, creates a need for a reasonably priced substitute – firewood. To address this need, the Kuskokwim Native Association (KNA) in March 2006 requested the University of Alaska Fairbanks-Cooperative Extension Service to study the feasibility of a firewood harvesting, processing and distribution center. KNA would develop a firewood processing center in both Aniak and Bethel on an existing 12-acre farm. The resulting enterprise would boost the local economy through new jobs and services and limit the hundreds of thousands of dollars paid to Outside heating oil suppliers.

tion area heat with oil or diesel, 35.9 percent, wood, and 9.4 percent, electricity. These percentages combined with other secondary data and assumptions created estimates for the Bethel area firewood market in Figure 1.



Market

First, the study identified households by heating fuel type based on the 2005 Alaska Housing Assessment for each Native corporation region (Information Insights, 2005). For instance, 92.3 percent within the for-profit Calista Corpora-

Kuskokwim Region residents would burn approximately 4,500 to 13,000 cords of firewood annually. Further analysis, such as better estimates of wood and oil combinations or the number of newer stove designs, would narrow this margin considerably.

Timber Supply

Next, the study determined supply. Nearly 23 million ft³ commercial stands of spruce and 22.7 million ft³ of non-commercial stands for a total 44.6 million ft³ grow in the Lower Kuskokwim. This stock increases by 1.3 percent annually. The initial harvest operation requires 270,000 ft³ to produce 3,000 cords, which will increase to 450,000 ft³ by the seventh year. This amount involves 1 percent of the available wood and won't exceed the growth rate (Hegg and Sieverding, 1979).

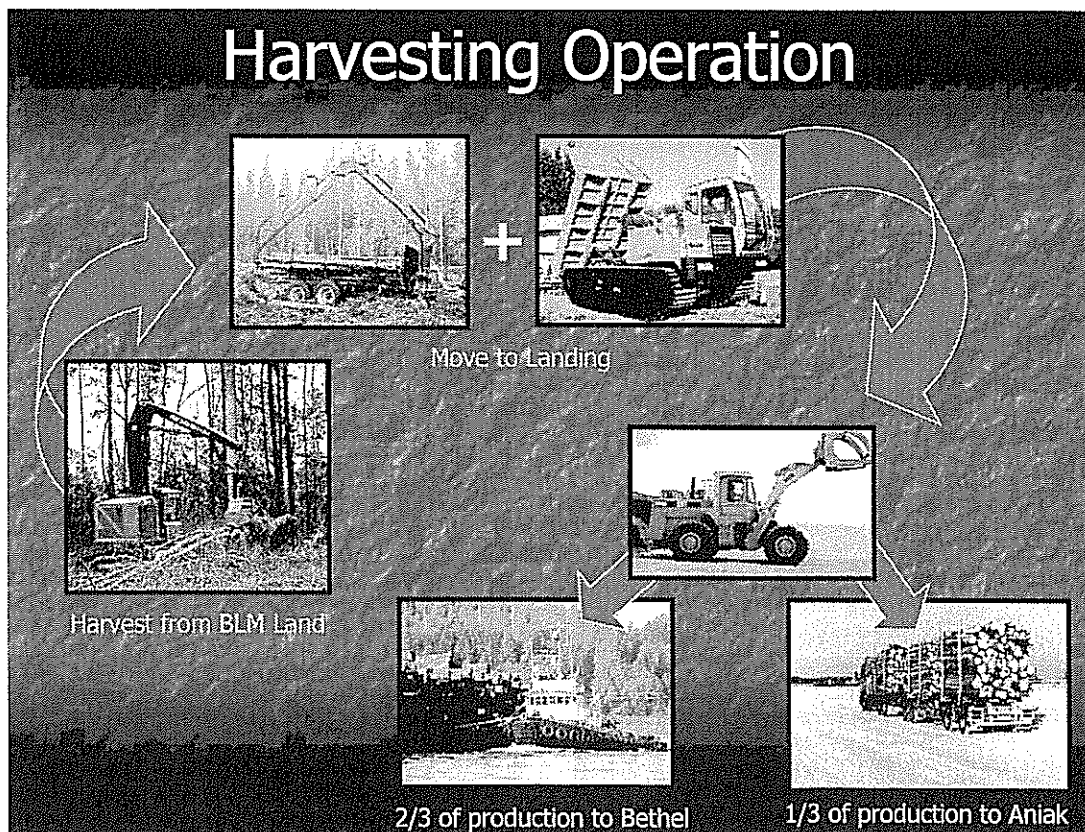
Operational Plan

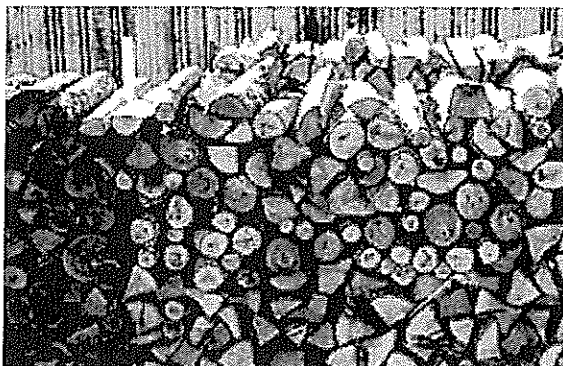
Three major components – with distinct characteristics and challenges – make up the KNA firewood enterprise. First, workers and machinery will harvest the wood 30 miles upstream

from Aniak on land maintained by the Bureau of Land Management (BLM). Second, workers will process two-thirds of the lumber in Bethel with the remainder in Aniak. The last component involves management and operational logistics in Aniak, Bethel and the harvest site. The harvesting, processing and management can be handled in countless ways, but the following operational plan proves most viable.

Harvesting Operations

Logs will be harvested in winter months on BLM land east of Chuathbaluk because of its proximity to Aniak, the federal land access from the Kuskokwim River and commercial stands of trees. This time of year allows transportation alternatives such as the ice road. Required machinery includes:





- Harvester (John Deere 735G or similar model)
- Wheeled loader (Caterpillar 766 or similar model)
- Morooka Crawler (Model MST 1500)
- Forwarding Trailer (Vario 120)
- Medium Duty Truck w/hydraulic loader (GMC Top kick or similar model)
- 7,000 feet of 5/16 gauge steel cable
- 670 reusable cable clips
- 4 Chainsaws

Processing Operations

Starting in December, the medium duty truck will transport two loads daily via ice road (60 miles round trip) to the KNA farm in Aniak. Using KNA equipment, workers will process 1,000 cords over the next three months. Required equipment includes:

- two hydraulic firewood processors (e-zee cord model)
- a $\frac{3}{4}$ ton pickup

After breakup in May, Crowley Transportation will barge the remaining wood to Bethel. Once the timber arrives, the loader will transport the bundles to the yard through August. Two employees will run two hydraulic firewood cutters during this time, averaging 2,000 cords

of finished product by the second year. This fenced facility will feature electricity, telephone service, a shed/office and restroom.

Management Operations

A project manager and clerk will monitor the books. Other responsibilities will include scheduling shipments, monitoring ice thickness, maintaining employee relations, purchasing supplies and general operations. The manager will work the Aniak yard from December to January and the Bethel location from February to November. The clerk will work in Bethel and monitor finances and the phone.

Financial Analysis

Like many small businesses, the firewood enterprise suffers from initial high capital costs and limited working capital, so this analysis explored two baseline scenarios: the owner finances startup costs through investors or the owner finds his own startup capital. Table 1 examines both scenarios.

	Baseline Estimates	
	Loan for All Startup Costs	Owner Financed
Description		
Equipment	449,301	449,301
Raw material costs (trees)	15,000	15,000
Backhaul costs	210,000	210,000
Land leasing/retail site	12,750	12,750
Office rent	6,800	6,800
Insurance on Equipment	27,583	27,583
Fuel costs	31,305	31,305
Maintenance costs	31,026	31,026
Labor & payroll	222,064	222,064
Utilities (electricity, internet, heat)	17,000	17,000
Unanticipated costs	36,585	25,603
Loan repayment	219,635	0
Total	\$1,279,049	\$1,048,432
Loan amount	\$766,382	
Down payment	\$255,461	

Conclusions and Recommendations

Depending on the borrowing decisions, the return on investment varies from 34 percent to 45 percent. As Table 2 reveals, the owner-financed alternative has a \$500,000 higher net present value than the lender-financed scenario. Either way, the expected returns are healthy and further enhance the feasibility of the enterprise, especially when considering that local money will stay in the area for goods produced within the area.

Also, this project won't "re-invent the wheel," yet homeowners understand the concept of heating with wood and, with the advent of environmentally sound fireplaces, they can do it

efficiently with a carbon-neutral fuel. Without this business, escalating heating oil costs will continue to pinch rural Alaskan pocketbooks and threaten the ability of these communities to sustain themselves. That fact alone makes the demand for a reasonably priced alternative essential.

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Table 2: Cash Flow, Net Present Value and Internal Rate of Return									
Owner Financed									
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 7*
ATCF (real)	-449,301	1,287	244,484	302,847	362,347	422,753	483,714	367,447	49,463
PV* real (at real rate)	-449,301	1,198	211,656	243,945	271,571	294,805	313,853	221,831	29,861
NPV	1,139,419								
IRR	0.448								
Lender Financed									
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 7*
ATCF (real)	-255,461	-156,784	113,911	173,272	233,522	294,422	355,607	239,380	49,463
PV* real (at real rate)	-255,461	-145,879	98,615	139,571	175,020	205,314	230,732	144,516	29,861
NPV	622,290								
IRR	0.342								

*Illustrates Equipment Sales



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LETTER OF INTENT AND AGREEMENT TO PURCHASE

Buyer: Native Village of Napaimute

Sellers: Nelson Enterprises

The terms of the agreement to purchase sawmill and assorted support building located in Chuathbaluk, Alaska, including 100% of the equipment, building, parts, and spare parts, are as follows:

Terms: Buyer will pay and Seller will accept \$73,500.00 as for the total package. \$73,500.00 cash within 30 days of receiving an "Intent to Proceed" letter regarding the award of a 2015 Indian Community Development Block Grant (ICDBG)-Economic Development. The Native Village of Napaimute has applied for above mentioned grant, and will if awarded comply with all requirements necessary to receive a "Letter to Proceed" in a timely manner (60 days).

Title: Seller will supply an updated abstract of registration. The title will be free and clear of all liens and encumbrances and transfer to be by warranty deed.

Condition: The property is to be purchased in "as is" condition. Seller represents that there have been no, and presently there are no inherently hazardous conditions on the equipment needing remediation. The XXX are in good working order. All equipment (included spare or replacement parts) and buildings directly associated with the milling of lumber, located on the mill site are included in this sale.

Contingencies: Buyer shall notify the seller within 10 days of ICDBG award notification as to whether or not the Buyer has been awarded monies necessary for the purchase of the mill. The Buyer will conduct property condition inspections that it deems appropriate. If the condition of the property is unacceptable to the Buyer, in its sole discretion, the Buyer may terminate this Agreement.

Formal Agreement: This Agreement is binding but is subject to a formal agreement to be drafted by the parties' attorneys containing usual and customary warranties and obligations and the terms listed above.

This offer shall remain open until February 1, 2016 .

Seller

Buyer

Date: 10/20/2015



MEMORANDUM OF UNDERSTANDING
BETWEEN
THE ASSOCIATION OF VILLAGE COUNCIL PRESIDENTS
AND
THE NATIVE VILLAGE OF NAPAIMATE

I. Introduction.

This Memorandum of Understanding ("MOU") is hereby made and entered into by the Association of Village Council Presidents, a tribal nonprofit corporation ("AVCP"), and the Native Village of Napaimute, a federally recognized Alaska Native tribe ("Napaimute") (together the "Parties").

II. Purpose.

This MOU serves to formalize a working relationship between the Parties in recognition of a region-wide interest in developing and promoting a sustainable truss plant and saw mill operation for the benefit of all AVCP members.

III. Statement of Region-wide Interest and Benefits.

AVCP is a tribal consortium of 56 federally recognized tribes in the Yukon-Kuskokwim Delta. Napaimute is a federally recognized tribe within the Yukon-Kuskokwim Delta and a member of AVCP. Collaboration between AVCP and Napaimute will create greater program efficiencies, and build a strong and sustainable truss plant and saw mill operation benefiting the Yukon-Kuskokwim Delta. It is both beneficial and in the best interest of the Yukon-Kuskokwim Delta to formalize this working relationship.

IV. Terms of Collaboration.

The Parties to this MOU have identified common interests, and have independently and collectively determined that it will be of mutual benefit to work collaboratively on developing a sustainable truss plant and saw mill operation utilizing local resources as well as providing employment opportunities to the residents of the Yukon-Kuskokwim Delta. The Parties will jointly pursue funding opportunities and collaborate on potential program modifications to achieve a viable a truss plant and saw mill operation within the Yukon-Kuskokwim Delta.

V. No Legal Obligations.

It is mutually agreed and understood by and between the Parties that this MOU is not a legally binding document, and that the purposes for which it is created are not exclusive to the Parties. Any subsequent binding contractual agreement between the Parties will be subject to AVCP's procurement policies.

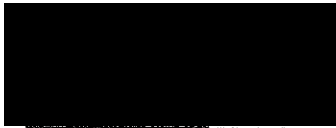
VI. Modification.

Modification within the scope of this MOU requires the mutual consent of the Parties by the issuance of a written modification, to be signed and dated by the Parties, prior to any change being performed.

VIII. Completion Date.

This MOU is effective as of the date of the last signature appearing below, and is to expire on December 31, 2016.

THIS AGREEMENT IS NOT EFFECTIVE UNTIL SIGNED AND DATED BY ALL PARTIES.



VICE PRESIDENT

Myron P. Naneng, Sr., President of AVCP

Date 10/22/2015



Devron Hellinga, President of Napalmute Traditional Council

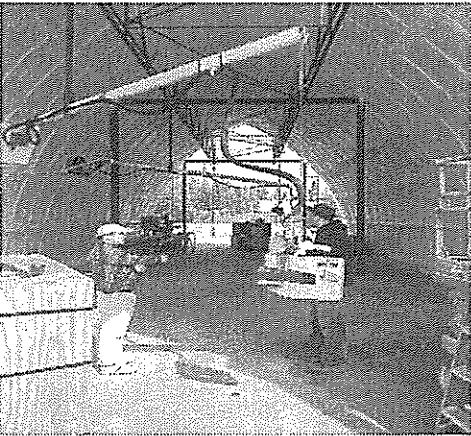
Date October 22, 2015



Integrated Truss Plant and Sawmill Business Plan



A Business Plan for
the Yukon-
Kuskokwim Economic
Development Council



Prepared by the University of
Alaska Center for Economic
Development

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I. Executive Summary

In the Yukon-Kuskowkim Delta, the housing crisis grows worse by the day. The region, dominated by winds gusting off the Bering Sea and soggy, permafrost-prone ground conditions, has some of the lowest-quality housing stock in Alaska, a huge percentage of which needs to be replaced as soon as possible. Homes in the region are often drafty, moldy and lacking in adequate water and sewer facilities. On top of that, they are small – on average, some of the smallest homes in the state are found in the Y-K Delta. Families in the Wade Hampton Census Area face the nation's most extreme levels of overcrowding, and their neighbors in the Bethel Census Area don't fare much better. These rates are higher than the national average by a factor of 10 or more.

The region is projected to grow at a rate greater than that of the rest of Alaska over the coming decades, which will only exacerbate existing housing issues. The Association of Village Council Presidents (AVCP), established in the pre-ANCSA era to respond to the social-service needs of residents of the region, commissioned this study to examine the feasibility of manufacturing home-construction components in the region, using locally sourced lumber, as a means of lowering the barriers to housing development while providing local jobs and bolstering the fledgling regional timber industry.

Specifically, AVCP proposes to build an integrated truss plant in Bethel, at the site of a former fish-processing facility on the banks of the Kuskokwim River. The product, integrated trusses, are a structural component integral to the construction of a highly energy-efficient style of housing developed by the Cold Climate Housing Research Center (CCHRC) in Fairbanks, prototypes of which are already improving the lives of residents in Atmautluak, Crooked Creek and Galena, to name a few. CCHRC's integrated truss homes boast 6 Star energy ratings through the State of Alaska's Building Energy Efficiency Standards program and can be built with a variety of foundation types depending on local ground conditions. Moving from an older home typical of the region into an integrated truss home will net thousands of dollars in annual energy savings, not to mention safer indoor air quality. Integrated trusses are whole-home trusses; as opposed to traditional construction, which makes use of roof and floor trusses and wall joists, the integrated truss combines all of these elements in one assembly that looks a bit like the house's cross-sectioned skeleton. Integrated trusses facilitate a quicker, less technical build; a typical integrated truss home can be framed in one day, without a large crew or specialized equipment or labor.

There are many reasons to be optimistic about AVCP's proposal and the promise of local lumber manufacturing in the region. The truss plant's competitive advantages will be its ability to bring this specialized, engineered-for-Alaska style of home to the region on a much broader scale, as well as the significant cost savings associated with not having to ship large structural components into the region via barge. (Between 50-60 percent of the cost of home construction in the region is attributable to shipping.) Working in partnership with a sawmill located upriver in Chuathbaluk, the opportunity also exists to use local, Kuskokwim River white spruce to manufacture the trusses. This option features the twin benefits of providing local jobs in a community hungry for opportunity and helping to strengthen the ongoing efforts of organizations like AVCP and the Yukon Kuskokwim Economic Development Council (YKEDC) to establish a viable forestry and wood products industry in the region.

The proposal also faces a few obstacles, which is to be expected. Looming largest among them is the relative paucity of funding for home construction in the region. Today, the dominant regional builder is

the AVCP Regional Housing Authority, which for the past few years has constructed approximately 22 houses per season in the region. The AVCP RHA already has a home style it is using in these constructions that relies on traditional trusses, and a crew trained to build in this style. The truss plant's managers will need to win over AVCP RHA to the integrated truss style of building in order to succeed. Although the RHA has a regular, ongoing program of new housing construction, the need in the region far outstrips the funding it has been able to secure. An aggressive effort on the part of AVCP, working in partnership with CCHRC and the RHA and others, may help grow the market for new housing by seeking out new and innovative ways to finance their construction. However, the State of Alaska's fiscal challenges are expected to make this a tall order. Technical challenges associated with running the sawmill and receiving grade stamping and certification for the lumber and trusses also exist, but with a thoughtful, phased approach to operations, could be surmountable. Using lumber purchased and shipped from outside the region is also an option, and one that results in little net change to the truss plant's profitability under current assumptions.

The detailed financial analysis attached to this report includes data for both lumber-sourcing options – local or Lower 48 lumber. Financial highlights for the proposed truss plant include the following:

- ❖ Whether using local lumber or Lower 48 lumber, the plant is expected to achieve profitability by its third year of operation;
- ❖ In year three, the break-even number of home constructions is 24;
- ❖ Compared to industry averages, both local lumber and Lower 48 lumber options produce significantly higher ratios of net income to gross revenue and net profit margin to gross revenue by year three;
- ❖ Cost of goods sold for both lumber-source options falls below industry averages by year three;
- ❖ And overhead costs drop below industry averages by year three, falling to half of the industry average by year 10.

The assumptions on which these projections are based are detailed in the respective sections on the financial analysis for both truss plant and sawmill included in this report. The report analyzes the truss plant first, followed by the sawmill, and then includes several sections relevant to both operations, including combined economic impacts, legal and regulatory considerations, facility design considerations, business structure options, and potential sources of funding to finance the build-out and initial operations of the plant.

The opportunity to bring greatly improved housing to the region fits perfectly with AVCP's mission to "promote self-determination, protection and enhancement of our culture and traditions through a working partnership with member villages of the Yukon-Kuskokwim Delta." Although a move into the manufacturing sector will be a substantial deviation from AVCP's existing social-service profile, it is a complement to the organization's role within the newly established YKEDC and ongoing efforts to develop a Yukon-Kuskokwim Freight and Energy Corridor. Economic development in rural Alaska is not easy. There are significant challenges to overcome on the path to a rate of new-home construction that would even begin to meet the demand and established need. But with the right combination of careful and well-developed business planning for the truss plant and sawmill; a partnership with AVCP RHA to provide at least some of its annual new housing construction; and a successful effort to develop additional funding sources for new-home construction in the region, the proposed AVCP truss plant could one day be an example of how aligning need with local resources and capabilities has a positive outcome for rural residents.

II. Yukon-Kuskokwim Regional Background

The truss plant under consideration by the Association of Village Council Presidents would be located in Bethel, the regional hub and population center for the Yukon-Kuskokwim Delta. Housing needs are intense in Bethel and throughout the region, and the proposed development would offer positive economic impacts across multiple communities. For that reason, this overview covers demographic, population and housing trends for the Bethel and Wade Hampton census areas, also referred to collectively as the Calista Corporation region. Data on demographics and population are primarily based on the decennial census and the U.S. Census Bureau's American Community Surveys; housing data are drawn from the census as well as the Alaska Housing Finance Corporation, which in 2014 released a comprehensive report on housing conditions statewide based on Alaska Native Corporation boundaries.

A. City of Bethel

Bethel is located on the banks of the Kuskokwim River in western Alaska, about 60 miles inland from the Bering Sea. It is the largest city in Western Alaska with a population of 6,363 as of 2013.¹ It serves as a transportation, medical and services hub for the 56 surrounding villages in the Calista Corporation region.

The community is accessible only by air and water, with a regional airport served by seven passenger airlines and four cargo carriers. The Port of Bethel on the Kuskokwim River is the northernmost medium-draft port in the United States,² and a local barge company distributes goods from Bethel to surrounding river-accessible villages.

Bethel sits on a river delta, and the surrounding terrain is mostly flat and treeless. The city lies within the Yukon Delta National Wildlife Refuge (YDNWR), which, at 19.16 million acres, is the second-largest wildlife refuge in the United States. The YDNWR is a coastal plain created by the Yukon and Kuskokwim rivers and is home to one of the largest concentrations of waterfowl in the world, making Bethel a prime area for bird watchers. The refuge is administered from offices in the community. Bethel's climate is classified as subarctic, with long, moderately cold winters and short, mild summers. Bethel receives around 17 inches of rain per year, concentrated in June, July and August.

Yup'ik people have lived in the area for thousands of years, but it was the creation of an Alaska Commercial Company trading post in 1880 that led to the establishment of Bethel as a permanent settlement and regional hub. Moravian missionaries opened a mission in 1885, and a post office opened in 1905. The population has grown steadily since the early 1900s, with increases of more than 70 percent between decennial census records from the 1950s through the 1970s. Between the 2000 and 2010 censuses, the population grew 11 percent.

Bethel is an Alaska Native community, with Yup'ik Eskimo the predominant Alaska Native culture. The local lifestyle includes a blend of traditional subsistence practices with a modern Western economy. For example, many Yup'ik families spend time each summer at a seasonal fish camp, catching and preserving salmon to last throughout the year. Subsistence hunting for big game animals and birds is also common, and resources are often shared between families, neighbors and throughout the

¹ U.S. Census Bureau

² <http://www.avec.org/communities/community.php?ID=59>

community. Yet Bethel is also home to numerous retail shops and restaurants, and a great number of residents find employment at these locations as well as within the public sector, which has a large presence.

B. The Region: Bethel and Wade Hampton Census Areas

The Bethel Census Area, which includes more than 45,000 square miles in western Alaska, was home to 17,103 residents at the time of the 2010 U.S. Census. Bethel is by far the largest community in the Census Area and the largest community in Alaska's Unorganized Borough, the portion of the state not part of a locally-administered borough. At 19,673 square miles, Wade Hampton Census Area (also part of the Unorganized Borough) sits north of the Bethel Census Area and had a population of 7,459 as of the 2010 census. Its largest community is Hooper Bay, with slightly more than 1,000 residents.

Employment

The single largest employment sector in the Bethel Census Area is the public sector: schools, social services, health care and other government services employ 46 percent of local residents. The balance of jobs is in the service sector, particularly in the transportation industry (flight services and cargo) and in local retail.³

In the Wade Hampton Census Area, the public sector provides an even larger proportion of local jobs: of the 2,032 workers in the area, 56 percent were employed in the public sector. The second-largest local industry, at 12 percent, was retail trade.

Demographic profile

Unemployment is high throughout western Alaska, which commonly records one of the highest rates in the state. The Bethel Census Area reported a 19 percent unemployment rate at the time of the US Census Bureau's 2013 American Community Survey. The same report indicated a 28 percent unemployment rate for the Wade Hampton Census Area. Unemployment in both of these areas is significantly higher than the statewide unemployment rate, which stood at 6.3 percent as of December 2014.

The unemployment rate for the more broadly defined Southwest Economic Region, which includes Bethel and Wade Hampton census areas as well as the Dillingham Census Area, Bristol Bay Borough, Lake and Peninsula Borough, Aleutians East Borough and the Aleutians West Census Area, was the highest in the state during 2013 at 13.2 percent⁴.

³ U.S. Census Bureau, American Community Survey, 2009-2013 5-Year Data

⁴ Alaska Department of Labor and Workforce Development, Research and Analysis Section

Table 1: Bethel and Wade Hampton Census Areas Workforce Characteristics

	Bethel CA	Wade Hampton CA
Population size	17,356	7,678
Median Household Income	\$51,689	\$40,176
Civilian Labor Force	7,432	2,825
Employed	6,049	2,032
Private wage & salary workers	3,128 (51.7%)	868 (42.7%)
Government workers	2,796 (46.2%)	1,147 (56.4%)
Self-employed workers	117 (1.9%)	11 (0.5%)
Unpaid family workers	8 (0.1%)	6 (0.2%)
Unemployed	1,383 (18.6%)	793 (28.1%)
Not in Labor Force	4,337	1,951

Source: American Community Survey 2009-2013 5-Year Data, U.S. Census Bureau

Table 2: Bethel and Wade Hampton Census Area Workers by Industry

Workers by Industry	Bethel	Bethel %	Wade Hampton	Wade %
Agriculture, forestry, fishing and hunting, and mining	74	1.2%	14	0.7%
Construction	203	3.4%	136	6.7%
Manufacturing	40	0.7%	47	2.3%
Wholesale trade	24	0.4%	2	0.1%
Retail trade	727	12.0%	247	12.2%
Transportation and warehousing, and utilities	654	10.8%	180	8.9%
Information	92	1.5%	28	1.4%
Finance and insurance, and real estate and rental and leasing	218	3.6%	47	2.3%
Professional, scientific, management and administration	114	1.9%	27	1.3%
Educational services, and health care, and social assistance	2271	37.5%	759	37.4%
Arts, entertainment, and recreation, and accommodations, and food services	235	3.9%	40	2.0%
Public administration	180	3.0%	83	4.1%
Other	1217	20.1%	422	20.8%

Source: American Community Survey 2009-2013 5-Year Data, U.S. Census Bureau

The Bethel and Wade Hampton census areas are predominantly Alaska Native. Among residents claiming one race in the Bethel Census Area, 86 percent are of Alaska Native heritage. In the Wade Hampton Census Area, the percent claiming Native ancestry is even higher, at 95 percent. Alaska Natives in this region, predominantly the Yup'ik and Cup'ik, are named after the two main dialects of the Yup'ik language.⁵ Of a total Yup'ik population of approximately 21,000, 10,000 are fluent speakers of the language and many children grow up speaking Yup'ik as their primary language.⁶ Cultural and language preservation efforts, including a Yup'ik language immersion school in Bethel, aim to keep the language alive. The Bethel Census Area is one of only 38 county-level census areas in the United States where English is not the most commonly spoken language, and one of only three where it is neither English nor Spanish.⁷ In the Wade Hampton Census Area, 50 percent of residents speak Yup'ik at home as a first language.⁸

Table 3: Race of Residents in the Bethel Census Area

	Bethel Claiming 1 Race	Bethel Claiming 1 or more races	Wade Hampton Claiming 1 Race	Wade Hampton Claiming 1 or more races
White	1894	2486	276	624
Black or African American	65	142	15	65
American Indian or Alaska Native	14109	14757	6946	7299
Asian	160	249	38	43
Pacific Islander	27	58	24	33
Other	45	66	0	3

Source: American Community Survey 2009-2013 5-Year Data, U.S. Census Bureau

Projected Growth

Both the Bethel and Wade Hampton census areas are expected to grow steadily over the coming decades, and to outpace the rate of growth expected for the rest of the state. The key factor behind this projected growth is the median age of residents.⁹

Wade Hampton Census Area is Alaska's youngest, by median age at just 22, which compares to 26 in the neighboring Bethel Census Area and 34 statewide. Alaska's population is expected to age steadily by 2042, with the population of those 65 and older increasing by a staggering 120 percent. However, this trend will be less pronounced among Alaska Native residents, and particularly in rural areas where the population is younger than average to begin with. Coupled with these age-related trends is the fact that Alaska Natives have a higher birth rate than their non-Native fellow Alaskans, and the population increase due to births alone is enough to explain the State of Alaska's projected increases in population

⁵ Alaska Native Heritage Center, <http://www.alaskanative.net/en/main-nav/education-and-programs/cultures-of-alaska/yupik-and-cupik/>

⁶ University of Alaska Fairbanks, Alaska Native Language Program, <http://www.uaf.edu/anlc/languages/cy/>

⁷ Modern Languages Association, Language Map Data Center, mla.org

⁸ Modern Languages Association, Language Map Data Center, mla.org

⁹ Alaska Department of Labor and Workforce Development, Alaska Economic Trends, June 2014

for both the Wade Hampton and Bethel census areas between the present and 2042. State demographers caution that projections for small, rural areas are difficult to make and can be greatly impacted by large, unanticipated events or projects.

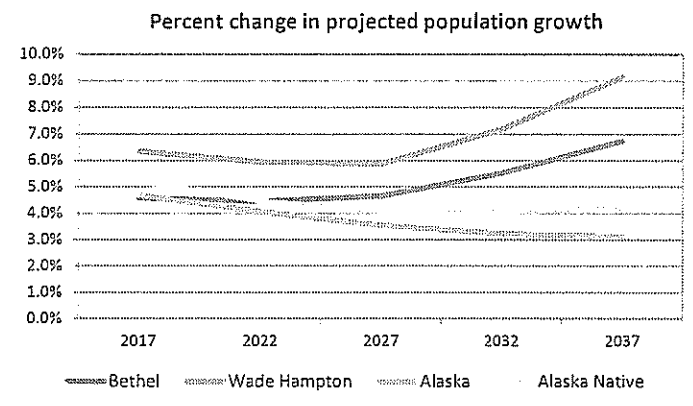


Figure 1: Population Growth Rates in Bethel and Wade Hampton as Compared to Alaska as a Whole and Alaska Natives.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

C. Housing Trends

In 2014, the Alaska Housing Finance Corporation (AHFC) released its Alaska Housing Assessment, a comprehensive survey of the state's housing stock and its characteristics prepared by the Cold Climate Housing Research Center (CCHRC) in Fairbanks. The report detailed an ongoing crisis in the Calista Corporation region – 40 percent of existing homes in the region can be classified as “overcrowded” (13 percent) or “severely overcrowded” (27 percent), according to thresholds established by the U.S. Department of Housing and Urban Development.¹⁰ This rate is roughly 13 times higher than the national average and considerably higher than the statewide rate of 6.1 percent. It also makes the Calista region the most overcrowded in the state. Part of the reason for this level of overcrowding may be related to the average size of the region's homes – at 875 square feet on average, they are the smallest in the state. Average home sizes in the region range from a low average of 627 square feet in Hooper Bay to a high average of 1,237 square feet in Bethel.¹¹

¹⁰ The U.S. Department of Housing and Urban Development sets its threshold for what constitutes “overcrowded” at more than one person per room, and “severely overcrowded” as more than 1.5 persons per room. A “room” is defined as any space that is separated by a partial or complete wall, including kitchens, living rooms, dining rooms, etc. but not including bathrooms, foyers, halls or unfinished basements.

¹¹ 2014 Alaska Housing Assessment, Calista Corporation

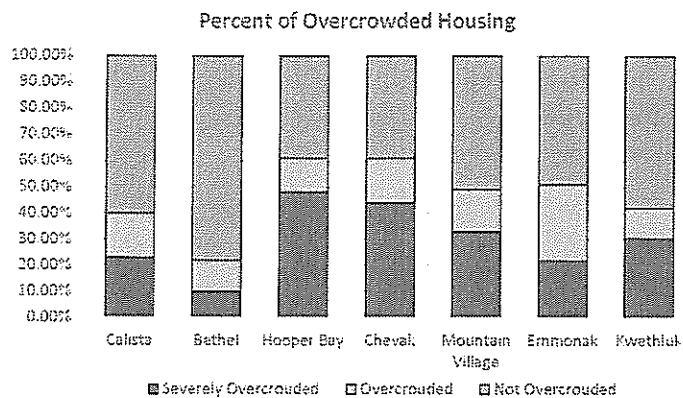


Figure 2: Percent of Overcrowded Housing in the Calista Region and Most Populous Communities
Source: Pre-Feasibility Analysis for Developing and Operating a Truss Plant in Bethel, Alaska, Cold Climate Housing Research Center

The cost of home construction in Alaska is largely dictated by distance from Seattle, where most materials used in Alaska home construction are sourced. Generally speaking, the farther an Alaska community is from Seattle, the more expensive it is to build there. Bethel is not the most expensive rural hub community in Alaska – Barrow boasts that unfortunate distinction – but it is still substantially more expensive than Anchorage, Juneau and even Kodiak. Construction costs in outlying villages in the Calista region are not tracked by the State of Alaska, but would also be higher based on distance from Bethel, from which materials are transported to their final destination.

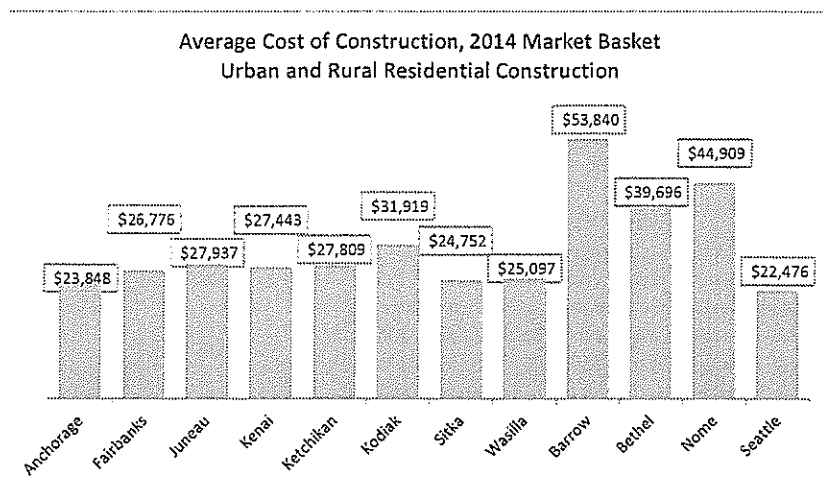


Figure 3: Construction Cost Market Basket, Statewide

Source: Alaska Department of Labor and Workforce Development, Research & Analysis Section, Construction Cost Survey 2014

The Alaska Department of Labor's annual construction cost survey is based on a market basket of materials used in the construction of a model home. Costs for the same components needed to build the model home are gathered in each of the surveyed communities. The state's market basket does not include trusses, but based on work done by CCHRC for AVCP in its "pre-feasibility" study of the truss plant concept, the cost of trusses to regional buyers can be reduced if the trusses are produced in-region.

These are the conditions in the region today. Combined with the State of Alaska's projections for population growth in the Wade Hampton and Bethel census areas over the next 25 years, it appears the overcrowding problem will grow more acute as time goes by. Although the need for more and improved housing in the region is readily demonstrated by the data, it will likely take time and outside funding to address the problem in a systemic fashion because the region has one of the highest unemployment rates and lowest median income levels in the state.¹²

¹² 2014 Alaska Housing Assessment, Calista Corporation

III. Market Opportunity

A. Bethel and Wade Hampton Housing Demand

There are two ways to think about the market opportunity for AVCP's proposed truss plant: the market as it exists today; and the need for new housing in the region.

The market today is served primarily by the AVCP Regional Housing Authority (AVCP RHA), which has built 35 units per year, on average, since 2000 and is the only entity in the region that is consistently building new single-family homes every year. Over the course of the last 15 years, the level of construction (based on funding availability) has fluctuated considerably from year to year, with a high of 40 homes in 2001 and 2002 and a low of 12 single-family homes at the bottom of the recession in 2009. The trend line for housing construction is on the decline. Although it is unlikely to decline to zero, it is difficult to anticipate where the bottom will be. AVCP RHA CEO Ron Hoffman said he expects that in the short term, federal funding will remain stable while state funding is expected to continue to decrease, despite the obvious and well-documented need for hundreds of new, energy-efficient homes throughout the region.

In 2014, AVCP RHA used \$9.3 million in funding from the U.S. Department of Housing and Urban Development's Office of Native American Programs and a \$2 million grant from the Alaska Housing Finance Corporation to pay for the construction of 22 houses in the region. Funding from other federal programs, such as the U.S. Department of Housing and Urban Development Rural Innovation Fund, which paid for two houses constructed by CCHRC in Atmautluak, may also be available. Other new homes, such as those built in Crooked Creek and Galena following major flooding that damaged dozens of local homes, were paid for with a combination of funds from the Alaska Division of Homeland Security and Emergency Management, the Federal Emergency Management Agency (FEMA), churches, nonprofits and the Donlin Mine, which is located near Crooked Creek. Non-RHA-built housing such as that built by the Lower Kuskokwim School District or the Yukon Kuskokwim Health Corporation is built with funds from those organizations.

However, the amount of housing being built is not indicative of need. AHFC's 2014 Statewide Housing Assessment paints a clear picture of the high level of need in the Bethel and Wade Hampton census areas. The study examined three different metrics to illustrate the percentage of homes in a given geographic area that are in need of replacement: those that are overcrowded, cost burdened and 1 Star energy rated¹³ (based on the State of Alaska's Building Energy Efficiency Standards, or BEES).

With these three metrics in mind, it is clear the Calista ANCSA region faces some of the steepest challenges in the state associated with the quality of the region's housing stock. The Calista region has the highest rates of overcrowding in Alaska, and Wade Hampton's 51.2 percent rate of overcrowding is

¹³ Overcrowding is defined by the U.S. Department of Housing and Urban Development as homes with more than one person per room; severely overcrowded is more than 1.5 persons per room. The HUD definition of "cost burdened" is any household spending more than 30 percent of annual income on housing expenses, which include heating costs. In the AHFC 2014 Housing Assessment, the authors report that cost-burdened statistics for rural Alaska are likely very low due to the poor energy-cost information used by the U.S. Census Bureau in its American Community Survey, from which the cost data originates. The number of homes with a 1 Star energy rating was drawn from a database maintained by AHFC, which includes energy-rating information on 30 percent of Alaska homes.

the highest for any Alaska census area by far (the next-highest level of overcrowding is found in the Northwest Arctic Census Area, which has a rate of 38.9 percent; the Bethel Census Area sits at 35.6 percent). Combine that with the fact that more than 19 percent of the homes in the Wade Hampton Census Area are 1 Star energy rated (a level categorized as “extreme” by the report, and the fourth-highest level in Alaska), and it’s clear that this area in particular is greatly in need of more energy-efficient homes. The Bethel Census Area fares slightly better than neighboring Wade Hampton, but its rates of overcrowding and 1 Star energy-rated homes are still among the highest in Alaska. As the housing assessment states:

“Strictly speaking, a 1 Star rating in AKWarm means that a home uses at least four times as much energy as it would if built to AHFC’s 2012 Building Energy Efficiency Standard. While in some cases a low rating is attributable to a very inefficient heating device, generally it is a good indicator that a home is drafty, very poorly insulated, and in need of significant retrofit work.”¹⁴

Although the region’s residents do not appear to be particularly cost-burdened in comparison to residents elsewhere in Alaska, the report acknowledges that costs in rural Alaska are likely much higher than is indicated by these percentages because estimates on energy costs in rural Alaska are known to be inaccurate.

Table 4: Housing Need by ANCSA Region and Census Area¹⁵

	Barrow	Bethel	Wade Hampton	Level of need
Cost Burdened	18.70%	19.30%	17.00%	Extreme
Overcrowded	40.10%	35.60%	51.20%	High
1 Star	15.40%	14.20%	19.10%	Moderate

¹⁴ Appendix B, AHFC 2014 Statewide Housing Needs Assessment

¹⁵ Appendix B, AHFC 2014 Statewide Housing Needs Assessment

Table 5: Severity of Housing Need for Yukon-Kuskokwim Delta Communities with Sufficient Energy Data¹⁶

	Percent of One-Bedroom Household	Percent of Overcrowded Housing Units	Percent of 1 Star Housing Units
Akiachak	9.80%	57.20%	0.60%
Alakanuk	8.40%	36.10%	11.40%
Aniak	21.90%	19.70%	0.40%
Bethel	23.30%	23.30%	4.60%
Eek	13.80%	20.60%	17.20%
Emmonak	16.70%	52.30%	3.80%
Goodnews Bay	21.50%	40.80%	5.90%
Hooper Bay	18.00%	61.70%	21.10%
Kipnuk	21.00%	41.20%	6.10%
Kwethluk	6.30%	43.40%	24.80%
Lower Kalskag	17.90%	32.40%	3.10%
Marshall	18.00%	36.20%	5.70%
Napakiaik	29.30%	37.20%	12.40%
Nightmute	10.90%	66.70%	6.20%
Nunamiqua	5.40%	60.50%	12.40%
Nunapitchuk	4.40%	48.10%	44.10%
Scammon Bay	11.30%	64.80%	33.00%
Sleetmute	29.70%	4.10%	3.20%
Tununak	12.30%	37.20%	21.60%

¹⁶ Appendix E, AHFC 2014 Statewide Housing Needs Assessment

Table 6: Severity of Housing Need for Yukon-Kuskokwim Delta Communities Without Sufficient Energy Data¹⁷

	Percentage of Cooks Burdened Households	Percentage of Overcrowded Housing Units
Akiak	69.40%	18.40%
Atmautluak	7.80%	66.70%
Chefornak	18.80%	69.40%
Chevak	17.80%	61.50%
Chuathbaluk	5.00%	23.10%
Crooked Creek	6.50%	32.40%
Kasigluk	15.20%	56.40%
Kongiganak	15.00%	55.10%
Kotlik	8.50%	39.30%
Kwigillingok	20.80%	50.00%
Lime Village	28.60%	
Mekoryuk	36.20%	8.60%
Mountain Village	14.40%	49.40%
Napaskiak	16.90%	53.80%
Oscarville	23.10%	43.80%
Pilot Station	12.80%	59.30%
Pitkas Point	17.90%	56.40%
Platinum	60.00%	12.50%
Quinhagak	22.10%	44.80%
Red Devil	33.30%	
St. Mary's	35.90%	28.90%
Stony River	12.50%	30.80%
Tuluksak	22.60%	71.40%
Tuntutuliak	16.90%	59.00%

It is impossible to project what future federal budgets will include for the Department of Housing and Urban Development (HUD) for its various Native American housing programs, however the CEO of AVCP RHA said he expects to receive less combined federal and state funding in the immediate future. For the purpose of this report, projections of housing development and home building activity were developed using a hybrid approach that considers both historical trends in funding as reflected in the number of homes built by AVCP RHA over the past 15 years and population growth in the region as projected by State of Alaska demographers.

¹⁷ Appendix E, AHFC 2014 Statewide Housing Needs Assessment

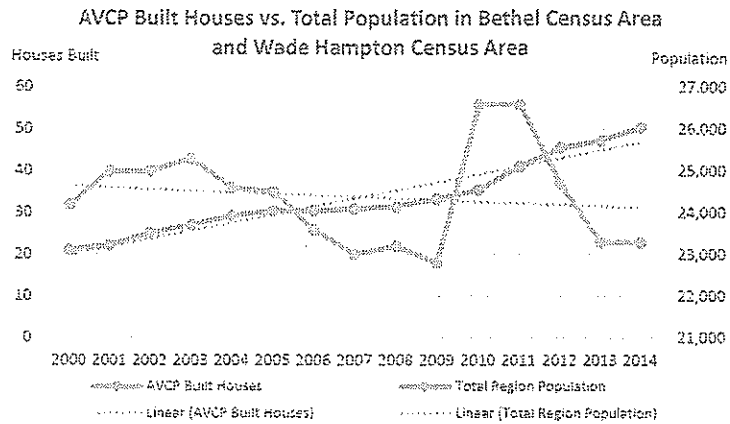


Figure 4: AVCP RHA Housing Units Built and Total Population in the Region, 2000-2014
Source: Information Provided by AVCP Regional Housing Authority.

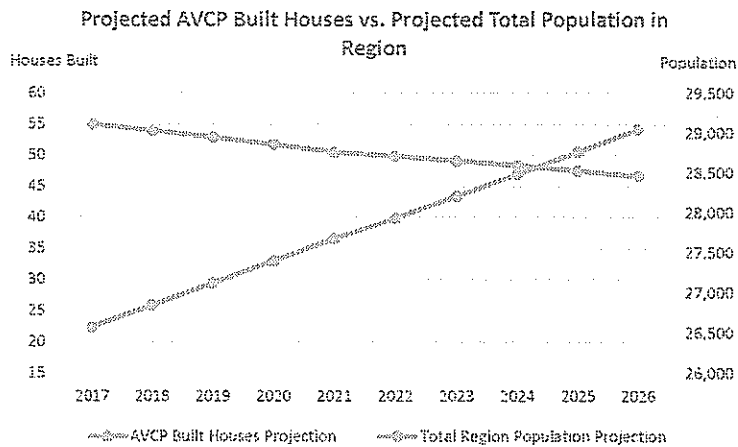


Figure 5: Projected AVCP RHA Houses Built and Projected Regional Population.
Source: Information Provided by AVCP Housing Authority.

In order to develop housing projections for the potential number of houses built in the next 10 years, a multiple regression model was developed with the number of houses built as the dependent variable and the population in the Bethel and Wade Hampton Census Areas as the independent variables. Population projections were drawn from the Alaska Department of Labor and Workforce Development's 2014 publication, "Alaska Population Projections 2012 to 2042." The regression analysis equation shows

the relationship between the number of houses built by AVCP and the two independent variables as follows:

$$\text{Number of Houses AVCP} = -273.50 + 0.08 * \text{Population Bethel} - 0.14 * \text{Population WH}$$

The multiple regression model shows that the Bethel Census Area population is a significant factor for the projection of the number of houses built with p-value equal to 2.8 percent (less than 5 percent is a significant factor). Wade Hampton Census Area population is also a significant factor for the projection of the number of houses built with p-value equal to 3.8 percent. The multiple regression model is 52.4 percent better than a projection based on simple average (R-square equal to 52.4 percent).

B. Case Study: Quinhagak

While the severe overcrowding detailed previously in this report is concerning on its own, it only tells part of the story of the region's housing situation. Perhaps even more troubling than the overcrowding issue in the region is that much of the existing housing stock is unsafe, not energy efficient and not structurally sound.

While there are few thorough studies of the issue, a recent study in the village of Quinhagak helps to outline the full extent of the poor housing stock issue. In 2009, the CCHRC, in partnership with other entities in the region, conducted a thorough assessment of housing stock in Quinhagak, which documented a startling situation. A few of the study's key findings are outlined below.

Study Findings

The CCHRC found that nearly one-third of the housing stock in the community was beyond the point of being salvageable and would require a complete rebuild.¹⁸ While these homes should be condemned, the community's existing housing stock simply could not accommodate the displaced residents if they were. As a result, significant numbers of residents live in homes that are not suitable for habitation.

Mold Exposure

The Quinhagak research found that most homes suffered from extensive mold damage. Mold can cause a number of health problems for residents, including nasal and sinus congestion, eye irritation, respiratory problems, coughing, headaches, skin problems and sneezing.¹⁹ Mold grows as a result of poor moisture control. In Quinhagak, the homes were without the needed airtightness properties to prevent mold growth. The result is extensive mold development throughout the home and its support structure.²⁰ The damage in many of these homes is so severe that it would require a complete rebuild in order to improve safety.

Subsidence

Another finding from the study was widespread subsidence of homes within the community. Subsidence occurs in the Y-K Delta due to the challenges associated with building homes on permafrost. As heat radiates from the home it warms the ground underneath. This can cause thawing of the foundational

¹⁸ Housing Analysis in Quinhagak, Alaska, CCHRC, http://www.cchrc.org/sites/default/files/docs/CCHRC_Housing_Analysis_Report.pdf

¹⁹ Mold Exposure Risks, <http://professionalmoldinspections.com/bethel-alaska/is-mold-dangerous-to-my-health.htm>

²⁰ A Brief Guide to Mold, Moisture, and Your Home, <http://www.epa.gov/mold/moldguide.html>

soil which in turn can result in the foundation sinking and becoming uneven, a phenomenon known as subsidence. CCHRC's study found that 60 percent of homes inspected suffered from significant subsidence.²¹In particular, subsidence caused problems with home entryways, leaving them unsafely attached to the housing structure and representing an immediate danger of injury or death in the event of entryway falling apart.

Energy Consumption

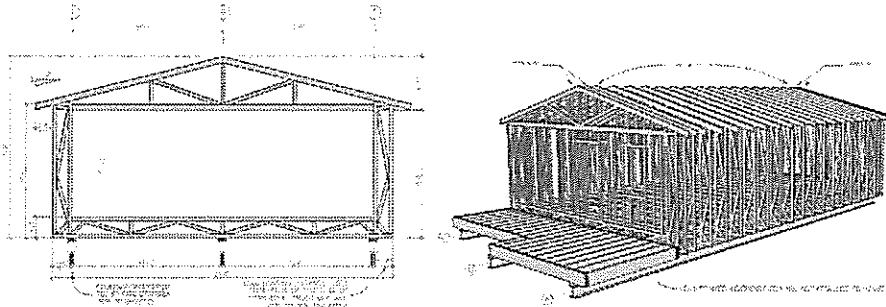
Data available from CCHRC indicates that the typical home in the Y-K Delta uses, on average, approximately 600-800 gallons of heating fuel each year. At a rate of \$7 per gallon, this comes at an annual cost of approximately \$4,200 to \$5,600 per year. It is estimated that a new, integrated truss home would reduce heating demand to less than 200 gallons per year and would confer an annual savings of \$2,800 to \$4,200. Energy consumption savings could, in effect, help subsidize new home construction. Over the 30-year life of a home, these savings can account for more than \$100,000.

²¹ Housing Analysis in Quinhagak, Alaska, CCHRC,
http://www.cchrc.org/sites/default/files/docs/CCHRC_Housing_Analysis_Report.pdf

IV. Business Description

A. Business Product Concept

AVCP is interested in operating a truss plant to be located in Bethel, Alaska to manufacture a style of trusses known as integrated trusses. This particular type of truss is associated with home designs developed by the Cold Climate Housing Research Center (CCHRC) specifically for use in rural Alaska. Trusses arrive to the project site in a single piece and combine the roof, walls, and floor into one structural framing unit. This type of home is well suited to rural Alaska because it is quick to build, requires limited or no specialized construction skills or equipment, is highly energy efficient and is less expensive to build and to own. Integrated trusses combine roof/ceiling and floor trusses in one unit so that the frame of the house can be quickly "tipped up" in a matter of a day or so.



Source: CCHRC: INTEGRATED TRUSS THREE BEDROOM Plan.

The AVCP plant may use lumber produced locally by companies located in villages along the Kuskokwim River or lumber shipped in by barge from suppliers in Anchorage or Seattle. Metal plates used to join truss sections will need to be sourced from Anchorage or Lower 48 suppliers and shipped in by barge.

Integrated truss homes are not currently the standard in terms of new residential construction in the region. In order to create demand for integrated trusses, AVCP will need to market both its product and the concept of the integrated truss home to the various builders in the region. Working closely with CCHRC to promote the benefits of the integrated truss style to institutional builders in the region will be crucial. CCHRC has already built a few integrated truss homes in the region that can be used as examples of attributes of integrated truss designs:

- ❖ In 2011, CCHRC worked in collaboration with a variety of tribal, nonprofit, state and federal organizations to build 10 integrated truss homes in the village of Crooked Creek on the Kuskokwim River following severe flooding that spring;
- ❖ In Atmautluak, two integrated truss prototype homes were built in the summer of 2013 and finished in nine weeks using a local, untrained crew through a grant from the U.S. Department of Housing and Urban Development Rural Innovation Fund;
- ❖ CCHRC is in the process of developing Aviation Housing using integrated trusses(duplexes) in Bethel in collaboration with AVCP;
- ❖ Farther up the Yukon River, CCHRC worked with the Federal Emergency Management Agency,

the State of Alaska, tribal and nonprofit organizations to construct six integrated truss homes in Galena following the flooding that devastated the community in 2013.

Due to the high cost of shipping building materials to Bethel and the surrounding villages via barge from Seattle or Anchorage, significant savings can be realized by manufacturing the integrated trusses in the region. At the same time, jobs will be created in the region and a projected modest profit may be earned by AVCP.

Manufacturing integrated trusses and being a leader in bringing this style of home to the region offers several advantages to AVCP:

- ❖ First, the homes have superior energy efficiency compared to traditional construction based on their R-values. (R-value refers to the capacity of insulating material to resist heat flow.) The Alaska Housing Finance Corporation establishes minimum R-values for homes receiving AHFC or State of Alaska funding; the current lower-bound limits are 38 for the ceiling, 21 for above-grade walls and 38 for floors²². By comparison, the integrated truss homes built in Atmautluak have R-values of 45 for the ceiling and 54 for the walls and floor. This means heating costs for homeowners will be considerably lower than for traditional construction, making the homes more affordable in a region burdened with low employment and high rates of poverty.
- ❖ Second, due to the simplicity of design, local laborers without specialized training or equipment can construct the homes fairly quickly. Framing can be accomplished in a single day. Spray-foam insulation also offers advantages over traditional insulation types in communities with limited accessibility. Spray foam comes in liquid form and is shipped in compact drums, while batting or Structural Insulated Panels (SIPs) are voluminous and increase shipping costs.
- ❖ Several of the Cold Climate Housing Research Center's integrated truss prototypes feature adjustable, above-grade foundations ideal for homes located in the Yukon-Kuskokwim region, where low ground, permafrost, and wet conditions mean that homes must be elevated to prevent rot, subsidence and other problems. The adjustable post-and-pile foundation style means when the ground shifts due to changes in permafrost or moisture conditions, the homeowner can adjust the home to remain level.
- ❖ CCHRC's designs do not rely on access to heavy equipment, which in outlying villages is often nonexistent or very expensive to ship in.
- ❖ Materials for the 1,000-square-foot integrated truss homes designed by CCHRC are estimated at approximately \$100,000 +/- 10 percent not including foundation, shipping and labor;²³ CCHRC analysts estimate inclusive costs at approximately \$320,000 for the same size house. This compares to AVCP RHA's current per-house average of about \$350,000²⁴.

AVCP's current strengths lie in the administration of social and cultural services to the people of the Y-K Delta. Its mission statement reads as follows:

"Provides Human Development, Social Services, and other culturally relevant programs for the people, to promote self-determination, protection and enhancement of our culture and traditions through a working partnership with member villages of the Yukon-Kuskokwim Delta."

²² AHFC Home Energy Guide for Alaska Homes: A Consumer Guide to Minimum Standards for Energy Efficiency

²³ <http://www.cchrc.org/galena-prototype-home>

²⁴ Personal communication, Abraham Palacios, AVCP RHA development director, May 12, 2015

The move into a manufacturing-type business will obviously be an extension of AVCP's capabilities, but it is not inconsistent with the organization's goals. In fact, it indirectly supports a number of initiatives already underway at AVCP. For example, AVCP provides assistance to eligible applicants for heating costs and housing improvement or replacement. The stated program purpose associated with AVCP's Housing Improvement Program is that every resident of the region should "have an opportunity to own a decent home with a suitable living environment." Building trusses that can be used to improve the local housing stock is entirely consistent with this goal. Additionally, local jobs will be created at the truss plant itself, and, if local lumber is used, at the sawmill as well, which is consistent with AVCP's goals in relation to education, employment and training. Therefore, the mission for the truss plant could be something similar to "Supporting AVCP's work to ensure residents have access to suitable, energy efficient and dignified housing while providing jobs and economic activity by reducing the cost of local home construction."

B. Service and Market Description

As discussed previously, the Bethel and Wade Hampton census areas suffer from a well-documented housing shortage and the highest rates of residential overcrowding in Alaska. According to the AHFC's 2014 Alaska Housing Assessment for the Calista ANCSA region, 17 percent of occupied units are overcrowded, and 23 percent are severely overcrowded. (By comparison, the statewide rate of overcrowding for Alaska is 6.1 percent, and the national rate is 3.1 percent.) The housing in the region also tends to be of low quality: 78 percent of the local housing stock was built prior to 1990 and is significantly less airtight and energy efficient than more modern construction. Additionally, 22 percent of the region's housing stock has an energy efficiency rating of only 1 Star. AHFC currently requires all new construction it finances to be at least 5 Star due to the substantially lower costs and energy consumption associated with improved energy efficiency. In short, there is a great need for a considerable amount of new, energy efficient housing in the region. (See tables 4, 5, and 6)

However, the economics of the region make improving its housing stock complex. In the Bethel Census Area, 22 percent of families meet the federal definition of poverty.²⁵ In the Wade Hampton Census Area, the threshold climbs to 30 percent.²⁶ Among households with children under 18 years of age, 56 percent of those in the Bethel Census Area received Supplemental Security Income (SSI), cash public assistance income or food stamps/Supplemental Nutrition Assistance Program (SNAP) benefits in the previous 12 months; in the Wade Hampton Census Area, the rate was 72 percent.

Due to high rates of unemployment and poverty in the region as well as high construction costs, new home construction is primarily made possible by public money. There are a number of state and federal programs available for Alaska Native tribal members with demonstrated need. The AVCP RHA is the dominant builder of new, single-family homes in the Bethel and Wade Hampton census areas (outside of the City of Bethel). Other new, single-family homes are built by private individuals with bank financing or by large employers in the region that provide housing to employees like the Yukon Kuskokwim Health Corporation, Lower Kuskokwim School District, and others.

²⁵ 2009-2013 American Community Survey 5-Year Data, Bethel Census Area

²⁶ 2009-2013 American Community Survey 5-Year Data, Wade Hampton Census Area

Association of Village Council Presidents Regional Housing Authority

The AVCP RHA was established in 1974, 10 years after AVCP was established. The RHA functions as a completely separate entity from AVCP, despite the implication of a closer relationship suggested by the two organizations' names.

AVCP RHA applies for and receives annual funding from various programs under the umbrella of the U.S. Department of Housing and Urban Development, which it uses to construct the vast majority of new homes in the Bethel and Wade Hampton census areas(not including the City of Bethel). AVCP RHA also provides rental assistance, home heating-cost assistance, conducts maintenance of existing AVCP RHA multi-unit housing facilities and conducts outreach and education. The RHA screens and approves applications from residents of the region based on a variety of criteria depending on the funding source, often in collaboration with local tribal organizations. Since its inception, AVCP RHA has constructed more than 1,500 homes in the region.

Each year, the RHA submits an application packet to the U.S. Department of Housing and Urban Development Office of Native American Programs (HUD/ONAP) detailing the anticipated needs of regional residents in a variety of different housing program areas. Funds are disbursed based on availability and other federal priorities. In 2014, AVCP RHA was responsible for constructing 22 new, single-family homes in the Bethel and Wade Hampton census areas.²⁷ The volume of new, single-family homes built by AVCP RHA fluctuates considerably year-to-year (Figure 6).

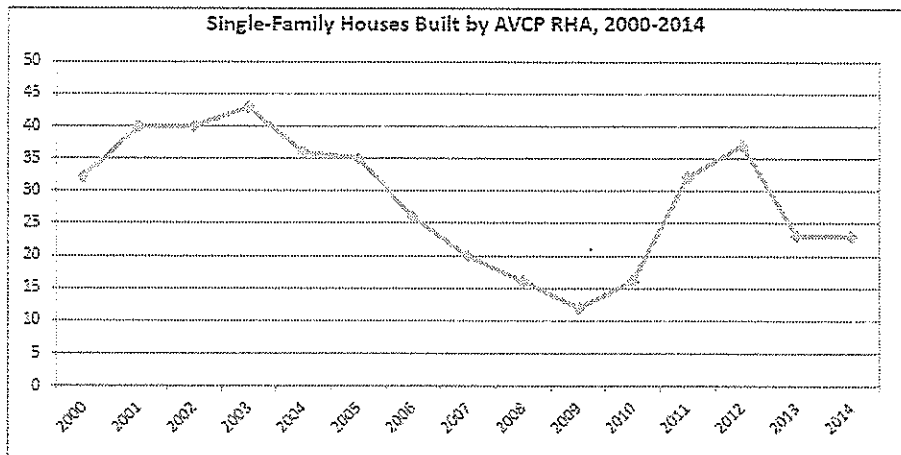


Figure 6: Houses Built by Year, 2000-2014, AVCP RHA .
Source: AVCP Regional Housing Authority.

AVCP RHA purchases materials for each home it builds through a request for proposals (RFP) for a whole-home package. These RFPs are generally released in January and winning bidders are notified by March.²⁸ The RHA selects a winning bidder to provide all the materials, from framing and insulation to

²⁷ AVCP RHA FY14 Annual Performance Report to HUD/ONAP, <http://www.avcphousing.org/avcp-rha-fy14-annual-performance-report/>

²⁸ Conversation with Abraham Palacios, Development Director, AVCP RHA, May 12, 2015

finishes like cabinets and appliances. RFPs generally receive a response from two building-supply companies.

Other

A few homes are built in the region by private homeowners with bank financing. These buyers may also benefit from lower-cost integrated trusses being sold in Bethel, but will need to be educated about the attributes of integrated truss homes.

The Yukon Kuskokwim Health Corporation is the region's largest employer and provides housing for many of its employees, who often come from outside the region. The YKHC currently has 144 housing units in Bethel, both apartments and duplexes. Newton Chase, YKHC development director, said the organization plans to add up to 250 new jobs in the coming decade but does not yet have firm plans for how to house these new employees. This organization represents another potential customer for integrated trusses, but it is likely that much of this housing will be multi-family units, so the plant would need to be able to produce more than just single-family integrated trusses.

In the past, individual tribal organizations have built housing in their communities. In 2013, the Atmautluak Traditional Council received funding from the U.S. Department of Housing and Urban Development's Rural Innovation Fund to construct the two integrated truss prototype homes in that community. Although small projects like this are likely in the future, it is hard to project when, how many and where these houses will be built. Outreach to all relevant socialservice and housing-related organizations in the region will ensure the attributes of the integrated truss approach are widely known.

C. AVCP's Approach

In order to win bids to build new homes in the integrated truss style for the region's institutional builders, AVCP may want to consider forming a partnership with an existing building-supply company to supply the rest of the home components. The two companies would respond to RFPs for home-construction bids together. AVCP would bring the integrated truss concept and lower-cost trusses to the partnership along with a wealth of local knowledge and understanding. Partner companies would supply the rest of the components needed to build a home and the ability to work with suppliers to find the lowest possible prices for those items. In time, AVCP will gain the experience needed to potentially become a supplier of whole-home packages itself.

AVCP's primary competitive advantage in selling integrated trusses is going to be "differentiation,"²⁹ which refers to the unique nature of the integrated truss product as compared to traditional trusses and traditional construction types. In this case, AVCP will be introducing not only integrated trusses, but the concept of the integrated truss-style home, to the market. (Although a few integrated truss homes have been built in the region, the establishment of AVCP's truss plant would increase the capacity for building this type of home and expose many more residents to its attributes.) AVCP will need to build on the work of CCHRC in educating institutional builders about the benefits of integrated truss construction and convincing them that integrated truss homes are superior to traditional residential construction. AVCP and its building-supply company partner will need to

²⁹ Porter, Michael E. (1980). *Generic Competitive Strategies*. In Porter, Michael E. (2nd ed.), *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (34-46). New York, New York: The Free Press.

position the two companies as informed by the latest scientific research and oriented toward bringing best practices in innovative home design to the region for the betterment of its people.

AVCP's secondary advantage will be cost. Once residents and institutional builders have been convinced that integrated truss homes are a superior option, it is reasonable to expect they will shop around to make sure AVCP's price for trusses is competitive. Additional cost factors associated with the integrated truss home include a quicker construction schedule; the lower shipping costs for spray-foam insulation as compared to batting or structural integrated panels (SIPs); the fact that specialized skills and equipment are not required in their assembly; and the lower cost of ownership due to the homes' high level of energy efficiency.

D. Key "Production" Factors

The main production factors associated with the manufacture of trusses will be lumber and labor. While qualified labor is an absolute necessity for the successful manufacture of integrated trusses, it is not expected to be difficult for AVCP to find and hire the carpenter/manager and crew for the truss plant in Bethel. The plant will need one carpenter/manager to oversee truss plant operations and to be responsible for checking trusses as they come off the manufacturing line to ensure they meet standards established by the West Coast Lumber Inspection Bureau. The other four employees do not need specialized training or experience and can be trained for their specific tasks upon hiring. Bethel is home to the YuutElitnaurviat Construction Trades training program, which should make it relatively easy to find an employee to serve as the manager who has received training in construction and carpentry.

More challenging is the question of whether to use local lumber or to "import" it from the Lower 48. Each of these options will be examined in detail below. Under current assumptions, these options are essentially equal in strictly financial terms, but using local lumber offers benefits (and risks) that sourcing lumber outside the region does not.

Local Lumber

In order to use local lumber, AVCP may work with Nelson Enterprises LLC, which operates a sawmill in Chuathbaluk. The mill's owner and the Native Village of Napaimute, which runs a logging operation to meet firewood demand in the region, would work as a team to supply the truss plant with milled and planed lumber for use in its trusses. Timber would be harvested from lands owned by The Kuskokwim Corporation, which has expressed willingness to provide lumber for this purpose.³⁰ The sawmill is not currently operating and would need to hire workers and add some equipment in order to fulfill the truss plant's demand. Due to the length of time it takes to dry wood to the required levels, the mill would need to begin operations a year before the truss plant could accept its products. During this first year, the plant could fulfill its needs by ordering from a supplier outside the region or simply delay the start of operations. The specifics of how the sawmill would operate and recommendations for its working relationship with the truss plant are outlined in considerably greater depth in section X of this report.

Lower 48 Lumber

Potential suppliers for lumber outside the region are numerous, and can be found in Anchorage and the Pacific Northwest (British Columbia, Washington, Oregon and Idaho). Because all lumber sold commercially for residential construction must be grade-stamped to meet the requirements of the

³⁰ Meeting with Andrea Gusty, The Kuskokwim Corporation, 03/26/2015

International Code Council, lumber should be of equivalent quality regardless of source. Hundreds of potential suppliers exist in the region, so the selection will most likely be based on reliability and credit terms.

E. Location and Physical Facilities

The proposed location for the AVCP truss manufacturing plant is on the banks of the Kuskokwim River and offers easy, convenient barge access. This strategic location would allow for easy loading of trusses and equipment onto a barge, and would reduce overland transport costs and logistics if utilizing barge transport for raw materials sourcing or delivery of finished products.

This will be the primary location for the truss manufacturing plant, and AVCP anticipates it could also serve as a retail shop where prospective customers could purchase home kits and obtain information about the integrated truss in home construction. A fish processing plant previously occupied the proposed site. The plant is a prefabricated steel building and is set on a post-and-pad foundation. The foundation has not been maintained throughout the years, however, and may not be suitable for immediate occupancy. The building measures 150 feet long by 114 feet wide.³¹

The property is currently owned by AVCP and is 83,037 square feet, providing ample space for a manufacturing facility and storage area. It is projected that the manufacturing plant will require a minimum of 2,400 square feet of space, measuring 60 feet by 40 feet. If needed, new construction will come at a cost of approximately \$300 per square foot. If a structural engineer determines that the existing fish processing plant can be repurposed as a truss manufacturing plant, this may reduce costs of constructing the new facility.

F. Relationship to Regional Development Strategy

In December 2014, the State of Alaska approved a request by AVCP to create the Yukon-Kuskokwim Economic Development Corporation (YKEDC). The newly formed YKEDC is the state's newest Alaska Regional Development Organization (ARDOR), and as such will be eligible for baseline grant funding from the State of Alaska on an annual basis to support economic development opportunities in the region. The YKEDC will help ensure that regional entrepreneurial efforts are supported and bring relevant businesses and people together to maximize opportunities.

Under the guidance and coordination of YKEDC, there are several economic development initiatives or plans for the region that could benefit from the establishment of AVCP's truss plant in Bethel, which are described here.

AVCP is currently in the planning process for the Y-K Freight and Energy Corridor, a project that envisions an overland link between the Kuskokwim and Yukon rivers for the purposes of economic development and to lower the cost of living for regional residents.³² The soonest this project could be completed is at least 10 years away. But if the corridor is built, it would open up additional markets along the Yukon River for integrated truss homes. Residents of Yukon River villages face many of the same challenges associated with inadequate housing and high home heating costs as those in the Calista region and could greatly benefit from the availability of this style of home for a reasonable price.

³¹ Personal Communication with Marc Stemp, AVCP

³² <http://y-kconnection.com/>

AVCP's Comprehensive Economic Development Strategy (CEDS) document,³³ which was completed in June 2014, established a major goal for the region related to affordable housing, specifically reducing the cost of living to attract and retain businesses. The plan details how overreliance on fuel oil for heat and diesel for energy is hampering efforts to make the region more attractive to business and affordable to residents. Through an earlier analysis AVCP determined that a proposed wood briquetting business would not be self-sustaining, but it is conceivable that if the truss plant uses local lumber, it could help support a wood products industry in the Y-K Delta region.

The AVCP CEDS also identifies the need for more and better information about the forestry/timber industry in the region – as it exists now and about its potential. The document suggests that with more information, it may be possible for AVCP to take a direct role in supporting development of this industry. Gaining experience in timber manufacturing through operating a truss plant would help AVCP identify other potential opportunities for use of regional wood products and give AVCP invaluable experience in manufacturing and marketing wood products in the region.

³³ Association of Village Council Presidents, Comprehensive Economic Development Strategy, June 2014

V. Marketing Strategies

A. Relationship Formation

The key buyers of AVCP-produced integrated trusses will be institutional and private homebuilders in the Bethel and Wade Hampton census areas. This includes current homebuilders, such as the AVCP Regional Housing Authority, which is responsible for approximately 84 percent of new housing construction in the region, and new housing developers, should they arise.

AVCP already enjoys a working relationship with AVCP RHA, but a formal introduction to the truss plant's capabilities and the attributes of integrated truss home construction should be scheduled as soon as detailed plans for the truss plant's operations are formalized, including when AVCP expects the truss plant to come online, its capacity and information on local economic impacts like hiring on both the truss plant and sawmill sides of the business. Briefings of this nature should be held with all potential institutional builders, including the Yukon-Kuskokwim Health Corporation, the Lower Kuskokwim School District and others. Ideally, representatives from the Cold Climate Housing Research Center will participate in the briefings as well to answer detailed technical questions about the benefits of integrated truss construction. A site visit to the Atmautluak integrated truss homes with key representatives would allow leaders in regional homebuilding to observe the attributes of the homes firsthand, while hearing from residents about energy-cost savings and their experiences as part of the construction team. These activities will help AVCP develop customers among existing builders.

Developing additional opportunities for new-home construction may require taking a similar approach with local, regional and state lawmakers. If AVCP intends to propose that, for example, Power Cost Equalization (PCE) or Low Income Home Energy Assistance Program (LIHEAP) funds be redirected to offset high energy use through quality home construction, it will need to make its case on a sound scientific basis and with considerable political finesse. Developing allies and advocates from among the region's representatives in the Alaska State Legislature, including Reps. Bob Herron and Neal Foster and Sens. Lyman Hoffman and Donny Olson, is the first step. Again, working in close coordination with CCHRC, which has a strong reputation for its work statewide, is advisable, as is bringing legislators and key decision makers in various state agencies to Atmautluak or Crooked Creek to see the success of the integrated truss homes built there firsthand.

The supplier relationships most relevant to AVCP depend on whether it decides to use local lumber or to purchase lumber from outside the region. If local lumber is used, then working closely with Nelson Enterprises, LLC or a firm with comparable local knowledge will be imperative. Frequent site visits to the sawmill and scheduled quarterly meetings (at a minimum) with sawmill management to review operational successes and challenges are suggested. If local lumber is used, the relationship with Case Nelson will be more significant than a normal buyer-supplier relationship because both entities will be key players in an important regional economic development initiative. Working closely together and communicating often will be critical to early identification of challenges in supply or labor issues so they can be mitigated early.

AVCP could start the process of looking for a supplier of lumber outside the region by arranging meetings in Anchorage with a variety of building-supply companies to discuss the project and compare price quotes. If AVCP intends to form a partnership with a building-supply company for the purpose of

bidding on AVCP RHA or other institutional builders' RFPs, it will want to take a more circumspect approach, ascertaining which companies are currently bidding on these RFPs. More than likely, AVCP's best partnership prospects will be those companies who have bid recently but were not successful.

B. Product Advantages

Integrated trusses are a single structural framing unit that combines the exterior walls, floor joists and roof into one assembly. Integrated truss homes offer several advantages (and a few drawbacks) for homebuilders and homeowners in the Yukon-Kuskokwim Delta region.

Advantages

- ❖ Because integrated trusses combine floor joists, wall framing and roof trusses in one assembly, an entire house's framing can be "tipped up" in a matter of a day or two. Shortening the time it takes to construct homes means more homes can be built in a season and the cost of labor per home is reduced. The homes can be framed "by hand," without booms or other heavy equipment that add expense when they must be shipped into remote locations by barge.
- ❖ Integrated truss homes are known for their high levels of energy efficiency, with R-values around 45 for the ceiling and 54 for the walls and floor. This equates to a 6 Star energy rating under the Alaska Housing Finance Corporation's AKWarm energy-rating system, which represents an approximate cost reduction in home heating costs of 35 percent over 5 Star Plus homes, the next highest rating level available and the level to which AVCP RHA is currently building its homes. CCHRC's integrated truss home prototypes use spray-foam insulation, which creates a monolithic thermal and air barrier with no thermal bridging. Spray foam is shipped to the building site in liquid form in drums, making the cost of shipping considerably less than voluminous materials like batting, cellulose or Structural Insulated Panels (SIPs).
- ❖ CCHRC's integrated truss prototype homes are designed with thick walls that allow for various levels of insulation based on the local climate where the homes are being built. The wall cavity is thick enough to allow ample space for high R-value insulation while also including enough room for the home's wiring and mechanical systems.
- ❖ Integrated truss homes are compatible with a variety of foundation types. In some parts of the region, post-and-pile foundations that elevate homes off wet ground and minimize heat transfer from the homes to permafrost are advisable; in other areas, a simple gravel pad is sufficient. In places where homes are elevated, glulam beams are connected with an adjustable bracket that allows the home to be re-leveled by the homeowner when ground conditions shift.
- ❖ The standardized shape of integrated trusses means homes can be scaled up or down to create more or less square footage with minimal changes to the overall home design.
- ❖ CCHRC estimates an average cost of \$320,000 per approximately 1,000-square-foot integrated truss home. This estimate includes foundation, plumbing, labor and administrative overhead. This price compares favorably to AVCP RHA's average of \$350,000 for the same square footage. In addition, an important component of the value proposition offered by the AVCP integrated truss home is the homeowner's sense of ownership when following the CCHRC approach to building. Past CCHRC projects have required future homeowners to be part of the construction crew building their home. This gives the owner

an intimate familiarity with all of the home's systems, allowing him or her to quickly identify maintenance issues, make repairs and prolong the useful life of the home. These homeowners can then help build new integrated truss homes in their community as funding becomes available.

Disadvantages

- ❖ Shipping costs for integrated trusses from Bethel to outlying villages may be higher than that of mono trusses, which AVCP RHA is currently using. This is because mono trusses, which are shaped like a right-angle triangle, are combined into the whole-house span on site. Unassembled, they are less cumbersome than whole-house integrated trusses. Mono trusses require more lengthy assembly at the project site, however, which adds significantly to the cost of a home.

AVCP's key competitive advantage with integrated trusses is that it will be bringing a new, rigorously tested and superior product to the region. While there are a handful of integrated truss homes in the region, AVCP's truss plant will greatly increase the number of integrated truss homes that could be built in the Y-K Delta. In partnership with CCHRC, AVCP will bring extensive expertise in cold-climate housing construction to the region's builders and make a better quality home available to all builders and future homeowners in the region. To capitalize on this advantage, AVCP will need to engage in a comprehensive education campaign targeting public and private builders, construction companies, tribal entities, legislators and others on the advantages of CCHRC's integrated truss prototypes.

C. Promotion Strategy

To support the outreach efforts outlined in subsection A ("Relationship Formation") of this section, AVCP will want to work with CCHRC develop a comprehensive information packet describing the attributes of integrated truss homes. A heavy emphasis on talking points, photography and other graphics will make this detailed, scientific information easily digestible for both lay and expert audiences. Supporting materials of various lengths and formats should be developed, including a full packet, short and longer PowerPoint presentations, a brochure and fact sheets. All documents should be available in electronic form on AVCP's website.

Due to the nature of the market, it will not be necessary to purchase advertising in traditional channels like TV, radio, print publications or social media. However, outreach to news organizations should be included in the briefings detailed above to help support the legislative outreach strategy and make the public-policy case for changing the way the state works to reduce the high cost of energy in rural Alaska. Initially, this outreach could be limited to the local region, but as plans develop, meetings with reporters, editors and other prominent thought leaders in Alaska are advisable.

VI. Competitive Landscape Analysis

The key competitive advantage for the AVCP truss plant is that it will be offering a different, superior product to institutional builders in the region. The integrated truss home prototypes developed by CCHRC are among the most energy efficient for the dollar and have been designed with the challenges associated with building in rural Alaska in mind. This includes speedy assembly; a low reliance on specialized tools, labor and equipment; lower average cost of home construction; and the social benefits of allowing future homeowners to participate in the construction of their own homes. In essence, AVCP will be bringing a premium product to the region and doing so at a competitive price.

Frequently, firms that pursue a differentiation strategy bear high costs of research and development, but here again, AVCP is well positioned. The development of integrated truss home prototypes has already been completed by CCHRC, which will be a willing partner and advocate in seeing AVCP's truss plant succeed. Once builders in the region have experienced the substantial benefits associated with integrated truss construction, AVCP can take advantage of another benefit associated with a differentiation strategy – brand loyalty. There are several other benefits associated with the differentiation strategy that are not as applicable in the case of governmental buyers, including lower price sensitivity once loyalty has been established and higher margins to insulate the firm from fluctuations in supplier pricing. Because AVCP's main interest is in seeing as many high-quality homes built in the region as possible, it will likely not take advantage of the opportunity to maximize profits as much as a private, for-profit entity would. But earning modest profits that insulate the truss plant from inevitable shortfalls in federal or state funding will help ensure the long-term viability of the business.

There are also disadvantages to this strategy. First, AVCP must convince the market that its product is superior to the status quo. Convincing people and institutions to change is never easy, even when the advantages of doing so are substantial. In the case of the regional housing market in the Bethel and Wade Hampton census areas, a great deal has been invested by the RHA in its current style of building, which even the leadership of CCHRC acknowledges is very good. For example, the construction trades vocational program in Bethel is housed in the same building as the RHA, and its graduates are used as construction crew to build its houses. Switching to a model that doesn't require as much skilled labor may mean there is less use for this program and less work for its graduates. And if builders throughout the region adopt the integrated truss style of construction, other suppliers will soon begin competing with AVCP and its partner on price to win back the business.

This study examines the competitive position of the AVCP truss plant using a model developed by Michael E. Porter, professor at The Institute for Strategy and Competitiveness at Harvard Business School. Porter originally proposed his "five forces" approach to business and industry analysis in 1985, and since then it has been rigorously studied and tested by other academics as well as "boots-on-the-ground" businesspeople. The five forces Porter identifies are the bargaining power of suppliers; threat of new entrants; bargaining power of buyers; threat of substitutes; and industry rivalry. Each will be examined in detail below.

Bargaining Power of Suppliers

The profitability of the truss plant will depend largely on its cost for raw materials – most notably, lumber. This study looks at two scenarios: using local lumber and bringing in lumber from outside the region.

In the case of local lumber, it is not expected that suppliers will have much power or be able to increase prices much. The sawmill would be gaining a substantial new customer in AVCP for which it will need to add employees and infrastructure. It will have little to gain by increasing its prices since it will have made a substantial investment to meet AVCP's needs and will want to keep the truss plant as a customer. AVCP's decision to use local lumber or source it from outside the region will not be a profit-based decision – both options are essentially equal from a profitability standpoint. The choice to use local lumber will be a choice to help bolster the local timber industry and/or support job creation in the region. If at any point the sawmill's prices become too high, AVCP could switch to importing lumber from outside the region and see little impact on its profitability. This fact also weakens the sawmill's position as a distinct business entity.

If AVCP decides to source its lumber from outside the region, the potential suppliers are too numerous to list. Barges from Anchorage and Seattle travel to Bethel each summer season, so any sawmill or lumber-supply company in the region is a possible supplier. For example, there are 222 businesses operating under the North American Industry Classification System code for sawmills in Alaska, Idaho, Oregon and Washington and another 152 in British Columbia. This doesn't include the many retail suppliers of lumber in the region as well. Given the sheer number of suppliers, it is safe to say they will not have much bargaining power with AVCP either. In markets with numerous suppliers, the condition of near-perfect competition is said to exist – in other words, no individual company has any power over the price of its product. The market dictates the price.

Because the lumber needed in truss manufacturing must meet quality standards established and verified by outside ratings agencies, no suppliers have the opportunity to provide lesser-quality products for a lower price. This means that as long as AVCP is purchasing lumber graded by a recognized lumber-grading agency, which it must in order for its trusses to receive the required approval from the West Coast Lumber Inspection Bureau, it can expect the product it receives to be of the same quality regardless of the source. Which firm is the most attractive supplier for AVCP will likely rest on its credit terms and reliability.

Threat of New Entrants

Companies entering a new market – or creating one, as AVCP will be doing by introducing integrated truss construction to the region – need to consider whether the market is so attractive that other companies are likely to flood into the market, increasing supply and driving down potential profits. This is a concern any time a market offers the potential for high returns or has low barriers to entry like up-front costs, specialized skill or knowledge, availability of suitable locations, etc.

The truss plant under consideration by AVCP is unlikely to draw new entrants into this market – at least not in the short term. The profits will be modest under the best circumstances, and AVCP has the advantage of already owning a desirable site for the truss plant along the river in Bethel. As discussed earlier in this analysis, if AVCP is successful in convincing major regional builders to switch to integrated truss construction, it is likely companies outside the region will bid on these jobs. But as long as AVCP

forms a partnership with a successful and competitive building-supply company to bid on whole-home packages, its cost advantage in assembling trusses in the region should give it an edge over suppliers outside the region.

Bargaining Power of Buyers

It cannot be overstated that the bargaining power of buyers is the truss plant's biggest weakness. Under current market conditions, there is really only one buyer of consequence: AVCP RHA. It is by far the largest builder in the region and the only one with a regular, ongoing annual program of new-home construction. This situation represents a huge vulnerability for the truss plant. In order for the truss plant to be successful, AVCP must succeed in at least one of two fairly substantial tasks:

1. Convince AVCP RHA that integrated trusses are a superior style of home construction and get the RHA to change the style of homes it is building in the region; or
2. Convince state or federal officials to introduce new programs to fund the construction of a substantial number of new homes in the region, and to use the integrated truss approach.

AVCP RHA has already met with officials from CCHRC and – at the time at least – seemed favorably disposed to the integrated truss concept.³⁴ However, the RHA has acquired expertise and educated its funders about the style of home it builds. Changing styles will mean the RHA will need to educate its funders about integrated truss construction and spray-foam insulation, and will need to train its workforce and superintendents on a new building style. Unless substantial cost savings can be demonstrated, it may be difficult to convince them to change. AVCP RHA's current homes are 5 Star Plus energy rated, and the integrated truss home is 6 Star, which represents a 35 percent decrease in the cost of home heating, but the cost of construction may only be marginally lower. According to CCHRC, the integrated truss home would cost approximately \$320,000 including pile foundations. By comparison, AVCP RHA identified the average cost of its smaller, 1,008-square-foot home at roughly \$350,000; a four-bedroom model at 1,344 square feet costs approximately \$579,000 on average.

With a break-even point for the truss plant of 24 homes in year three, relying on the existing local market would make the truss plant extremely vulnerable. Meanwhile, AVCP RHA CEO Ron Hoffman expects federal funding of new home construction to remain stable in the near term, while expecting state funding to decrease amidst budget cuts. It is recommended that in addition to aggressively marketing the benefits of integrated truss construction to regional builders, AVCP work with local legislators and state officials to identify other funding sources for new-home construction. For example, the State of Alaska currently subsidizes the high cost of energy in rural Alaska through the Power Cost Equalization (PCE) program and Low Income Home Energy Assistance Program (LIHEAP). Convincing state leaders to subsidize the front end of energy consumption – energy efficient homes – versus the end result of homes lacking energy efficiency – high energy costs – could result in grant funding to build more energy efficient homes.

Threat of Substitutes

The threat of substitutes is also high for AVCP's integrated truss operation. AVCP RHA's homes are built using mono trusses and Structural Insulated Panels (SIPs). Mono trusses are used in roof construction

³⁴ Video produced by CCHRC featuring AVCP RHA CEO Ron Hoffman in November 2013:
<https://www.youtube.com/watch?v=8bUMzPtWogE>

and look like a right-angle triangle; two mono trusses can be combined to create a whole-home roof span. The mono trusses are less expensive to transport to remote building sites than roof or gable trusses because they are combined at the building site and therefore take up a bit less space on the barge.

The perceived level of product differentiation between AVCP RHA's existing style of home construction and that of the integrated truss home may be low. Both are energy efficient and cost roughly the same amount to build. The RHA will likely need to be convinced that the speed of assembly and somewhat reduced costs are significant enough factors to compel the organization to change. Integrated truss homes that have already been built in the region offer a solid foundation on which to build this case. By examining average annual fuel cost between the integrated truss homes in Atmautluak and AVCP RHA-built homes in comparable environmental and geographic circumstances may help make this case.

Intensity of Industry Rivalry

Industry rivalry in the home-construction market in the Bethel and Wade Hampton census areas is basically nonexistent. There is only one major builder in the region, AVCP RHA, and it follows its own program of construction to its own specifications, and has developed its business model over decades with significant success. Because the market is dictated by the availability of federal or other institutional funding and not consumer demand, there is little over which to compete. The mere fact that there is only one builder demonstrates that there's no rivalry in the industry. According to AVCP RHA, few bidders respond to its annual RFP process for home packages, and prices for materials aren't terribly competitive. Although these circumstances may seem ideal to the successful bidder, it is also a precarious position due to the dependence on one customer.

Landscape Analysis Conclusion

In sum, everything rests on AVCP's ability to convince local builders and thought leaders that the integrated truss home is the best choice for the region. Although the truss plant would face little pressure from suppliers or potential new entrants into the market, it would also be incredibly vulnerable to the availability of funds and organizational priorities of the RHA. The position of the truss plant would be much stronger with other builders active in the region.

VII. Truss Plant SWOT Analysis

	Beneficial	Harmful
	Strengths	Weaknesses
Internal	<ol style="list-style-type: none"> 1. High quality product; different than anything currently available in the local market 2. Truss plant and sawmill will bring local jobs and boost efforts to establish a local forestry industry 3. Strong position relative to suppliers 4. Abundant local labor market 5. Highly respected partner in CCHRC, which has already done R&D for integrated truss home prototypes 6. Well documented need for improved housing in the region will make convincing funders and lawmakers easier 	<ol style="list-style-type: none"> 1. Existing regional housing market is dominated by a single buyer, AVCP RHA, which is currently utilizing a different style of home construction 2. AVCP will be reliant on partners to supply the remaining components of home packages 3. In early years, AVCP will not have access to significant local lumber at lower rates than found in the Lower 48
External	Opportunities <ol style="list-style-type: none"> 1. Creation of local jobs and investment 2. Ability to utilize a local resource (timber) 3. Meeting an intense housing shortage 4. Reach out to public officials and lawmakers to build support for the integrated truss concept 5. With experience, AVCP could become a supplier of whole-home packages 6. Y-K Freight and Energy Corridor could open up new markets in Yukon River villages 7. YKHC plans to hire 250 new employees in the coming decade, and they will need housing 	Threats <ol style="list-style-type: none"> 1. Supply interruptions if sourcing lumber locally 2. AVCP will need to develop a market outside of the RHA in order to thrive

VIII. Financial Analysis – Truss Plant

Comprehensive financial statements for the AVCP truss plant project rely on several key assumptions, which are detailed below.

A. Financial Analysis Assumptions

Revenue

AVCP's truss plant revenue is derived from two primary sources, integrated gable trusses and integrated field trusses. The pre-feasibility analysis completed by CCHRC informed the assumptions in this area.

Projections are based on the number of trusses needed to build a typical 1,092-square-foot house. The assumptions utilized in calculating revenue include the following:

- ❖ A "standard" house will be 1,092 square feet and will require 19 integrated field trusses and four integrated gable trusses. Integrated gable trusses will be sold at \$840 each, while integrated field trusses will be sold at \$480 each.³⁵ The prices are based on pre-feasibility study estimations for the Lower 48 sale price, not taking into account cost of delivery.
- ❖ The truss plant's annual revenues are based on capturing sales from three separate markets: AVCP RHA, non-RHA housing construction, and the creation of new housing market demand to satisfy the unmet need for housing in the region.
 - Projections assume that the truss plant will be slowly phased in as the supplier of choice for AVCP RHA: the truss plant will cover 10 percent of the RHA's demand in year one; 23 percent in year two; 50 percent in year three; and 100 percent beginning in year four.
 - Projections also assume that the truss plant will capture 50 percent of the existing non-RHA housing construction demand, which is equivalent to approximately five homes per year.³⁶
 - Projections also assume that AVCP will create its own market for housing construction in the region in order to address the chronic overcrowding and low-quality housing in the region. This market is dependent on the ability of AVCP and CCHRC to piece together creative financing techniques to fund home construction. Without these financing methods it is unlikely that the private-sector demand would be significant. This model projects one new home for this segment in year one, eventually leveling out at 20 new homes in year nine. Recommendations for how to develop this market are included in section V of this report.

Utilities and Trash Disposal Expense

Utilities and trash disposal expense was calculated based on the following assumptions:

- ❖ Electricity consumption of 1,500 kilowatt hours per month; a year-one work season of 10 weeks (building up to 22 weeks by year 10); and a local electricity rate in Bethel of 56 cents per kilowatt hour.³⁷

³⁵ Bethel Truss Pre-Feasibility, CCHRC, 06/02/2014

³⁶ Non-RHA constructions were calculated based on CCHRC's pre-feasibility analysis which stated that the RHA currently builds 84 percent of the homes in the region.

³⁷ Rates derived from Power Cost Equalization Program report, 2013

- ❖ Local utilities expenses were estimated based on local water rates of \$166 per month and local sewer rates of \$47 per month.³⁸
- ❖ Garbage disposal expense was estimated based off of two trash disposals per month at a rate of \$200 per truck.³⁹

Commented [SRC1]: We had trouble finding specific rates for water and sewer. Brent or Marc, do either of you have a recommendation?

Service and Repair Expense

Service and repair expense is drawn from the CCHRC pre-feasibility analysis and takes into account damages caused by the work crew becoming familiar with the equipment. This expense is estimated at \$13,000 in year one, followed by \$12,000 beginning in year two. The costs for cyclic rebuilds are annuitized into the calculation.

Software Expense

Software expense depends on the type of software chosen for the facility. This expense was taken from the CCHRC pre-feasibility analysis and is estimated at \$300 in year one. Subsequent years are adjusted for inflation.

Lumber Expense

The primary input cost for the construction of trusses is lumber. In calculating this expense, two different inputs were used: local lumber and Lower 48 lumber. In year one, local lumber was calculated at a rate of \$19.80 for a 2" x 6" x 20' piece of lumber, without delivery. When delivery costs were factored in, this price increased to \$20.37 per piece. Delivery expense includes fuel consumption, truck rental and delivery-driver wages. In subsequent years, inflation was factored into these inputs.

Lower 48 lumber expenses were calculated by contacting several different lumber retailers for lumber in sizes of 2" x 6" x 20' and 2" x 4" x 20' including delivery charges from Seattle to Bethel. Both types of lumber can be used for construction of integrated trusses, but using 2" x 6" lumber saves from \$1,771 in a year one to \$14,157 in year ten. A quoted price of \$11.95 per piece of 2" x 6" x 20' lumber was received. When delivery is factored in, the final cost is \$20.56⁴⁰.

Plates Expense

Plates expense was calculated by deriving the total square inches of metal plates necessary for each type of truss and then multiplying by the total annual demand. The analysis uses Home Depot's price of \$2.50 for each 100-square-inch plate.⁴¹ Total plate cost in year one is \$14,394.

Other Expense

Other expenses are those that are not accounted for in other expense lines. This category includes phone, fax and Internet charges and other incidental expenses. This expense was estimated at \$5,000 in year one and adjusted for inflation thereafter.

³⁸ "Bethel City Council Raises Water Rates," Ben Matheson, KYUK, 09/10/2014

³⁹ "City of Bethel, Fees and Charges," http://www.cityofbethel.org/index.asp?Type=B_PRGSRV&SEC={44ED41B8-5C19-4807-94AB-DD4D0268BDC5}&DE={78CEF66-FB24-4696-9F21-F764896EAE88}

⁴⁰ Based on a quote, provided by Spenard Builders Supply (Anchorage).

⁴¹ Home Depot, Tie Plate, <http://www.homedepot.com/p/Simpson-Strong-Tie-1-13-16-in-x-5-in-Tie-Plate-TP15/100375260?keyword=Gusset+plates+teeth#specifications>

Packaging Expense

Based on information received from professionals in the sawmill business, there is no need for specific packaging to deliver lumber to the home site. But it was recommended to budget for the fact that trusses will need to be covered when delivered during rainy weather conditions. The number of deliveries varies from two to 12 within the projection period and it is assumed that this expense will not go over \$500 per year. Three percent inflation is factored into the model beginning in year two.

Professional Fees/Permits/Certifications Expense

This expense includes a \$50 annual business-license fee; \$700 in year one for local building permits; and \$7,000 for truss plant certification in year one. It is anticipated that the plant would require four inspections in year one, and annual inspections beginning in year two.

Insurance Expense

Insurance expense is calculated by factoring in three different types of insurance necessary for the AVCP truss plant: general liability insurance, property insurance and worker's compensation insurance. An agent in the WoodPro division of Bowermaster and Associates provided the estimates detailed below. Bowermaster is a California-based insurance company with specialization in the wood products industry and licensed to write policies in Alaska. Bowermaster's quote was confirmed by Arizona-based Mohave West Insurance Agency, which has an office in Haines and also specializes in the industry.

General liability insurance was calculated as a variable expense at a rate of \$7 for every \$1,000 in sales. Bowermaster cited a figure of \$4-\$6 per \$1,000 in sales as a standard, conservative industry rate.⁴² In the interest of providing an even more conservative estimate, projections in this analysis are based on slightly more than the quoted rate.

Property insurance rates were based on a total property value of \$700,000, resulting in an estimated cost of between \$3,500 and \$7,500. Final estimates for the total insured property value of the facility is approximately \$1,000,000, so this expense was adjusted proportionately. Final calculations incorporated the most conservative rate of this range, \$7,500 per \$700,000 of insured property. Insured property includes a facility valued at \$720,000, equipment valued at \$180,000, and inventory and materials with a value of \$100,000. It is important to note that property insurance rates are based on specific information about the facility, including its exact square footage, number of smoke detectors and many other details that were not yet available. Rates will certainly vary with more complete information.

Workers compensation insurance was estimated at between \$8 and \$15 per \$100 in payroll. In an effort to generate more conservative estimates than those provided, the consulting team calculated workers compensation rates based on the prevailing base rate in Washington state, which is \$4.97 per labor hour for "wood-framed building construction."⁴³ Rates in Alaska are generally 24 percent higher than in

⁴² Corey Kroviak, Bowermaster and Associates Insurance, Personal Communication, March 13, 2015

⁴³ "2015 Composite Base Rates by Risk Classification,"

<http://www.ini.wa.gov/Claims/Ins/Files/Rates/2015RatesBusTypeClassCode.pdf>

Washington, so the estimate was adjusted accordingly.⁴⁴ This resulted in an estimated rate of \$6.16 per labor hour, or \$18 per \$100 in payroll.

Tractor Rent Expense

This expense includes the cost of delivering products to their final destination, as well as the cost of delivering lumber to the facility. Vehicle rent is based on a rate of \$188 per day and the number of days rented is calculated based on the total number of houses produced, the local lumber purchased, as well as the load-bearing capacity of the rental truck.

Office Equipment and Supplies

This expense was seen as a variable expense that is dependent on sales volume. It was calculated using the prevailing industry average of \$4 per \$1,000 in revenue.

Payroll Services Expense

Payroll services expense covers the cost of processing payroll and other administrative tasks associated with employing people, and was based on the prevailing market rate. This is a recurring expense for each employee pay period. This rate is calculated using a base rate of \$40 plus an additional \$45 for each employee on the payroll. With six employees, this factors out to \$310. Subsequent years are adjusted to include inflation.

Management Expense

The manager's role will be to promote the product to the necessary partners within the region, including state and federal funding agencies. The manager will also be responsible for sourcing raw materials, hiring and terminating employees, and identifying new market segments for the business. The manager will primarily be functioning in a regulatory and business development role. It is anticipated that the plant will require significant management expertise in year one, with slightly less in years two and three as the plant builds efficiency. Managerial time is then expected to slowly increase beginning in year four due to the truss plant scaling up operations and capturing additional new markets. Management expense is based on a total need of 700 hours for year one. It is expected that the manager would be a half time (20 hours per week) position lasting 35 weeks per year. The manager's expense is prorated based on an annual salary of \$70,000.⁴⁵

Carpenter Expense

Carpenter expense was based on a year one requirement of 410 labor hours at \$25 per hour.⁴⁶ This was based off of CCHRC pre-feasibility data for the rate of production for an experienced crew lead familiar with truss construction. It is anticipated that the carpenter, in addition to manufacturing trusses, will oversee the project team and provide guidance on an as-needed basis. It is also assumed that the carpenter's work season will begin a month before the plant goes into production to open it up and train employees and will extend a month later, to close things down at the end of the season.

⁴⁴ "2014 Oregon Workers' Compensation Premium Rate Ranking Summary," Jay Dotter and Mike Manley, October 2014, http://www.cbs.state.or.us/external/dir/wc_cost/files/report_summary.pdf

⁴⁵ Annual salary based on CCHRC Pre-Feasibility analysis

⁴⁶ Hourly wage based on CCHRC Pre-Feasibility analysis

Crew Expense

Crew expense was based on a year one requirement of 1,640 labor hours at \$15 per hour⁴⁷. This was based off of CCHRC pre-feasibility data for the rate of production for crewmembers working in a truss plant. This expense also factors in one month at the beginning of the season for training and plant opening, as well as one month at the end of the season for plant closing.

Benefits and Payroll Tax Expense

Benefits and payroll tax expense is calculated using AVCP's established fringe benefit rates of 40 percent of employee salaries.

Loan Interest Expense

Loan interest expense is based on a prevailing interest rate of 6 percent and is used to cover initial working capital needs as well as AVCP's 50 percent of startup costs (those not covered by a grant). It is anticipated AVCP will need a \$450,125 capital loan and a \$170,000 operating loan in year one.

Depreciation Expense

Depreciation expense was based on the manufacturing equipment required by the truss plant, as well as the construction of the truss plant facility. Depreciation was discounted by 50 percent based on the assumption that half of the capital costs will be financed by a federal grant. This is due to the fact that organizations are not permitted to depreciate the portion of a piece of equipment financed with a federal grant⁴⁸. Depreciation will vary depending on the exact amount of grant funding AVCP is able to secure.

B. Capital Costs

Total capital costs for the project are estimated to be \$900,250 and include the following expenses:

Table 7: Miscellaneous Capital Costs

Item	Quantity	Unit Price	Subtotal Cost (\$)	Depreciation Rate (%)	Estimated Life (Years)
Construction	1	1,000	1,000	200	5
Equipment	1	500	500	100	5
Manufacturing	1	150	150	30	5
Other	-	350	350	-	-
Total			2,000	330	
Reserve			600		
Total Cost			2,600		
Equipment					
Transport					

⁴⁷ Hourly wage based on CCHRC Pre-Feasibility analysis

⁴⁸ <http://f2.washington.edu/fm/mag/research/equipment>

In this plan, it is assumed that a new production facility will be built at a price \$300 per square foot and the approximate size of the facility will be 2,400 square feet.

Table 8: Facility Construction Expenses.

Facility Expenses	Area (sq. ft.)	Price per sq. ft. \$	Total Cost \$	Useful Life (years)	Depreciation per year \$
Facility Construction	2,400	300	720,000	50	14,400

Table 9: Manufacturing Equipment.

Manufacturing Equipment	Quantity	Unit Price \$	Subtotal Cost \$	Depreciable Equipment \$	(Life) (years)
Caterpillar RC60, 6,000# Fork Lift	1	13,000	13,000	1,300	10
Lumber racks, 6 bunks per rack	3	7,000	21,000	2,100	10
Lumber/material handling carts	11	250	2,750	275	10
Linear Saw w/ Speed Cut Express	1	18,000	18,000	1,800	10
Metal Jig Tables	12	1,000	12,000	2,400	5
Lasers: straight line and cross	3	400	1,200	240	5
Pallet rack for plates	1	600	600	60	10
Truss building hand tools and equipment	1	3,500	3,500	700	5
Eagle TP600 hydraulic presses	2	9,000	18,000	1,800	10
Small air compressor	1	900	900	180	5
30' finished truss handling wagon	1	2,200	2,200	220	10
Finished truss staging racks	4	1,000	4,000	800	5
Metal material banding equipment	1	500	500	100	5
Floor truss machine	1	25,000	25,000	5,000	
Total			122,650	16,975	
Freight Cost			55,000		
Total Cost, Including Freight			177,650		

Overall the capital cost, including manufacturing facility construction, is equal to \$844,650.

IX. Income Statements and Cash Flows, and Financial Summary

A. Income Statements (10 Years)

Table 10: Income Statement Local Lumber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE										
Gross Integrated Sales	39,553	78,209	141,571	246,873	357,713	372,155	28,5278	235,159	315,757	319,268
Fisc Integrated Sales	107,057	212,827	384,285	670,319	829,337	723,985	772,513	541,083	531,707	287,242
Gross Revenue	146,610	290,926	525,857	917,192	1,187,050	1,096,140	1,058,691	776,242	847,464	606,510
Occupancy Expense										
Utilities and Trash Disposal	4,427	4,815	5,657	7,093	7,173	7,255	7,396	7,505	7,613	7,617
Land Lease										
Service and Repair	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000
Software	300	300	300	300	300	300	300	300	300	300
Total Occupancy Expense	17,727	17,725	17,727	17,723	17,723	17,723	17,723	17,723	17,723	17,723
Operating Expense										
Lumber	45,307	93,785	163,453	283,574	296,022	311,872	328,017	344,533	363,891	363,891
Payroll	14,394	26,582	51,723	90,289	94,372	99,259	103,440	105,720	111,371	117,454
Fuel	5,000	5,150	5,305	5,464	5,626	5,796	5,970	6,149	6,334	6,524
Chemical	500	515	530	545	560	575	590	605	620	635
Packaging	7,250	1,800	1,653	1,507	1,361	1,215	1,069	923	777	631
Insurance	24,650	28,839	31,607	40,155	44,991	46,527	47,126	48,205	49,287	50,369
Total Operating Expense	97,511	154,423	252,435	425,935	463,105	465,615	466,228	471,473	478,357	485,432
Administrative Expense										
Office Equipment and Supplies	556	1,165	2,103	2,659	3,028	4,029	4,394	4,445	4,652	4,751
Bookkeeping	1,559	1,641	1,695	1,751	1,808	1,869	1,931	1,994	2,056	2,108
Payroll	2,175	2,525	2,795	3,420	3,537	3,557	3,665	3,772	3,879	3,972
Total Administrative Expense	4,290	5,331	6,593	7,830	8,373	9,455	10,050	10,419	10,587	10,931
Personnel Expense										
Management	23,558	22,857	21,547	22,925	24,293	25,954	27,614	29,382	31,252	33,132
Carpenter	10,251	12,730	16,612	22,804	28,025	34,873	42,377	50,715	59,872	69,956
Crew	24,601	30,553	39,670	54,969	67,131	78,707	92,344	108,050	125,853	144,794
Benefits/Payroll Taxes	23,354	26,351	31,212	40,319	42,132	44,215	46,374	48,610	50,959	52,605
Total Personnel Expense	81,772	90,233	102,441	138,133	147,452	154,785	162,210	170,169	178,342	186,896
Total Expense before Depreciation	189,246	266,650	387,501	591,957	616,112	645,915	676,464	707,953	740,473	785,776
Depreciation and Amortization										
Facilities & Equip. Loan Interest	37,200	35,273	33,223	31,050	29,746	26,304	23,716	20,972	18,054	14,531
Depreciation	15,653	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853
Total	52,853	51,126	49,076	46,903	45,599	42,157	39,569	36,825	33,907	30,384
Net Income before Taxes	(165,766)	(26,994)	89,229	273,343	266,168	319,079	342,459	366,455	391,154	400,039
Income Tax			22,781	114,009	131,095	142,154	148,657	155,055	165,801	169,693
Income after Taxes	(165,766)	(26,994)	66,448	164,335	135,073	176,895	197,792	211,351	225,353	230,416

Table 11: Income Statement Lower 48 Lumber

REVENUE	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gable Integrated, \$	93,453	78,259	141,571	246,923	257,621	271,156	284,978	299,189	313,787	319,768
Field Integrated, \$	107,087	212,527	384,265	870,219	899,237	739,935	773,513	811,085	851,707	887,342
Gross Revenue	195,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710
Occupancy Expense	4,487	4,915	5,657	7,093	7,178	7,286	7,356	7,505	7,613	7,617
Utilities and Trash Disposal										
Land Lease										
Service and Repair	13,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Software	360	310	330	531	342	553	965	377	385	482
Total Occupancy Expense	17,767	17,225	17,977	19,423	19,515	19,639	19,761	19,882	20,002	20,039
Operating Expense	45,655	90,755	184,215	286,633	299,277	313,237	331,356	348,351	365,622	372,871
Lumber	14,394	28,588	51,729	90,289	94,272	99,299	104,480	109,730	115,171	117,454
Planes	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524
Other	500	515	530	546	563	580	597	615	633	652
Packaging	7,780	1,800	1,853	1,907	1,962	2,010	2,079	2,140	2,202	2,267
Fees/Permit Costs/Certification	24,660	28,369	34,607	44,156	44,991	46,057	47,126	48,206	49,297	49,694
Insurance	97,959	155,356	258,238	428,994	446,691	468,939	491,767	515,150	539,259	548,462
Total Operating Expense	556	1,163	2,183	3,669	3,826	4,029	4,234	4,445	4,662	4,751
Administrative Expense	1,589	1,541	1,695	1,751	1,809	1,869	1,931	1,994	2,060	2,128
Office Equipment and Supplies	2,175	2,805	3,799	5,420	5,637	5,897	6,165	6,438	6,721	6,979
Bookkeeping										
Payroll	23,558	22,397	21,547	22,826	24,393	25,954	27,614	29,382	31,262	33,262
Management	10,251	11,720	16,612	22,904	23,895	24,878	25,977	27,108	28,272	29,556
Carpenter	24,601	30,553	39,870	54,969	57,131	59,797	62,944	66,068	69,484	72,853
Crew	29,364	26,352	31,212	40,319	42,132	44,215	46,374	48,620	50,955	52,685
Benefits-Payroll Taxes	81,773	92,233	109,241	141,118	147,461	154,753	162,310	170,169	178,342	184,395
Total Personnel Expense	199,784	267,659	339,255	594,956	619,366	649,279	680,002	711,651	744,325	760,756
Total Expense before Depreciation										
Depreciation and Amortization	37,268	85,273	93,223	91,050	28,746	26,304	23,716	20,972	18,064	14,981
Facilities & Equip. Loan Interest	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853
Depreciation	53,060	51,126	49,076	46,902	44,599	42,157	39,569	36,825	33,917	30,834
Total	(106,254)	(27,958)	87,507	275,284	292,974	315,715	338,921	362,768	387,252	396,120
Net Income Before Taxes			22,028	112,527	121,089	132,096	143,131	153,482	164,107	167,956
Income Tax										
Income after Taxes	(106,254)	(27,958)	65,479	162,756	171,884	183,619	195,789	209,287	223,145	228,164

B. Cash Flow Statements (10 Years)

Table 12: Cash Flow Local Lumber

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Operations															
Starting Cash	0	47,850	2,543	48,652	190,446	330,674	480,282	643,199	826,971	1,016,798					
Cash Inflow:															
Cash receipts from customers	146,540	299,826	525,837	917,142	956,879	1,607,151	1,058,491	1,111,274	1,165,494	1,167,710					
Cash paid for:															
Occupancy Expense	(17,787)	(17,225)	(17,977)	(19,423)	(19,515)	(19,639)	(19,751)	(19,883)	(20,002)	(20,019)					
Operating Expense	(97,511)	(154,428)	(256,485)	(425,935)	(443,498)	(465,625)	(488,228)	(511,473)	(535,357)	(545,482)					
Administrative Expense	(2,175)	(2,805)	(3,799)	(5,420)	(5,637)	(5,897)	(6,163)	(6,439)	(6,722)	(6,879)					
Personnel Expense	(81,773)	(92,233)	(109,241)	(141,118)	(147,462)	(154,753)	(162,310)	(170,169)	(178,342)	(184,396)					
Interest	(37,209)	(35,273)	(39,223)	(31,950)	(28,746)	(26,304)	(23,716)	(20,973)	(18,064)	(14,981)					
Income Taxes	0	0	(22,781)	(114,008)	(131,095)	(142,184)	(144,667)	(155,095)	(165,801)	(169,883)					
Net Cash Flow from Operations	-89,914	-11,137	82,330	180,188	180,925	192,747	213,644	227,244	241,206	246,269					
Investing Activities															
Cash receipts	-	-	-	-	-	-	-	-	-	-					
Cash Paid for:															
Equipment Purchase	(180,250)	-	-	-	-	-	-	-	-	-					
Building Facilities	(710,000)	-	-	-	-	-	-	-	-	-					
Net Cash Flow from IA	(900,250)	0	0	0	0	0	0	0	0	0					
Financing Activities															
Cash receipts from:															
USDA Grant	450,125	-	-	-	-	-	-	-	-	-					
EDA Grant	-	-	-	-	-	-	-	-	-	-					
Borrowing (loan)	620,125	-	-	-	-	-	-	-	-	-					
Cash paid for:															
Debt Principal Payments	(32,236)	(34,170)	(36,221)	(38,394)	(40,697)	(43,189)	(45,728)	(48,471)	(51,380)	(54,462)					
Net Cash Flow from FA	1,038,014	(34,170)	(36,221)	(38,394)	(40,697)	(43,189)	(45,728)	(48,471)	(51,380)	(54,462)					
Final Cash position	47,850	2,543	48,652	190,446	330,674	480,282	643,199	826,971	1,016,798	1,208,604					
Net Change in Cash	47,850	-45,308	46,110	141,794	140,228	149,608	167,917	178,773	189,826	191,806					

Table 13: Cash Flow Lower 48 Lumber

Starting Cash	0	47,362	1,036	46,197	186,412	333,452	489,784	655,698	832,366	1,019,984
Operations										
Cash Inflow:										
Cash receipts from customers	146,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710
Cash paid for:										
Occupancy Expense	(17,787)	(17,235)	(17,977)	(39,423)	(19,515)	(19,639)	(19,761)	(19,882)	(20,602)	(20,019)
Operating Expense	(97,999)	(155,396)	(258,238)	(428,994)	(446,692)	(468,989)	(491,767)	(515,190)	(539,259)	(549,462)
Administrative Expense	(2,175)	(2,805)	(3,799)	(5,420)	(5,637)	(5,897)	(6,165)	(6,439)	(6,722)	(6,879)
Personnel Expense	(81,773)	(92,233)	(109,241)	(141,118)	(147,462)	(154,753)	(162,310)	(170,169)	(178,342)	(184,396)
Interest	(37,298)	(55,273)	(93,223)	(31,050)	(28,746)	(26,304)	(23,716)	(20,971)	(18,964)	(14,981)
Income Taxes	0	0	(21,023)	(112,527)	(121,689)	(132,096)	(143,131)	(153,482)	(164,107)	(167,956)
Net Cash Flow from Operations	-90,401	-12,106	81,381	178,609	187,737	199,471	211,642	225,139	238,997	244,016
Investing Activities										
Cash receipts	-	-	-	-	-	-	-	-	-	-
Cash Paid for:										
Equipment Purchase	(180,259)	-	-	-	-	-	-	-	-	-
Building Facilities	(720,639)	-	-	-	-	-	-	-	-	-
Net Cash Flow from IA	(900,259)	0	0	0	0	0	0	0	0	0
Financing Activities										
Cash receipts from:										
USDA Grant	450,125	-	-	-	-	-	-	-	-	-
EDA Grant	-	-	-	-	-	-	-	-	-	-
Borrowing (loan)	620,125	-	-	-	-	-	-	-	-	-
Cash paid for:										
Debt Principal Payments	(32,236)	(34,170)	(36,221)	(38,394)	(40,697)	(43,139)	(45,728)	(48,471)	(51,380)	(54,462)
Net Cash Flow from FA	1,038,014	(34,170)	(36,221)	(38,394)	(40,697)	(43,139)	(45,728)	(48,471)	(51,380)	(54,462)
Final Cash position	47,362	1,086	46,197	186,412	333,452	489,784	655,698	832,366	1,019,984	1,109,537
Net Change in Cash	47,362	(46,276)	45,111	140,215	147,040	156,332	165,914	176,668	187,618	189,554

C. Break Even Point Calculation

Local Lumber		Lower 48 Lumber	
Gross Revenue	525,837	Gross Revenue	525,837
Variable Cost:		Variable Cost:	
Lumber	\$162,463	Lumber	\$164,215
Plates	\$51,728	Plates	\$51,728
Carpenter	\$16,612	Carpenter	\$16,612
Crew	\$39,870	Crew	\$39,870
Benefits+Payroll Taxes	\$31,212	Benefits+Payroll Taxes	\$31,212
Total VC	\$301,885	Total VC	\$303,637
Contribution Margin	223,952	Contribution Margin	\$222,200
Fixed Cost		Fixed Cost	
Utilities and Trash Disposal	\$5,657	Utilities and Trash Disposal	\$5,657
Service and Repair	\$12,000	Service and Repair	\$12,000
Software	\$320	Software	\$320
Other	\$5,305	Other	\$5,305
Packaging	\$530	Packaging	\$530
Professional Fees/Permit Costs/Certi	\$1,853	Professional Fees/Permit Costs/Ce	\$1,853
Office Equipment and Supplies	\$2,103	Office Equipment and Supplies	\$2,103
Payroll	\$1,695	Payroll	\$1,695
Depreciation	\$15,853	Depreciation	\$15,853
Interest	\$33,223	Interest	\$33,223
Management	\$21,547	Management	\$21,547
Insurance	\$34,607	Insurance Fixed	\$34,607
Total FC	\$134,693	Total FC	\$134,693
NI before taxes	89,259	NI before taxes	87,507
Break even point local lumber	24 houses	Break even point Lower 48 Lumber	24 houses

X. Sawmill Business Description

A. Current Status

Sawmill

Should AVCP decide to purchase its lumber locally, a key consideration will be the successful operation of a local sawmill to process raw timber into graded dimensional lumber for use in its truss manufacturing plant. The proposed sawmill under consideration is located in Chuathbaluk, a community of 118 residents located in the Bethel Census Area near the Kuskokwim River. It is owned and operated by Nelson Enterprises, LLC.

The Chuathbaluk sawmill was established in 1959. It operates using a circular automated mill capable of producing between 10,000 and 15,000 board feet of lumber per day. The mill has an auto carriage for easy loading of timber, and could be run by a single individual if need be. The mill also features air dry and air storage capabilities in order to get the lumber down to the moisture content required by grading agencies. The acquisition of a band re-saw would help to reduce energy costs at the mill, as well as increase daily production capacity by approximately 2,500 board feet. The entire system is currently powered by diesel fuel. The mill would be capable of producing both 2"x4" and 2"x6" dimensional lumber.⁴⁹

Historically, the sawmill has produced logs for use in log cabin-style homes in the region. The sawmill takes round timber and saws off three sides to create stackable logs that can be pieced together to form a cabin. In recent years, however, these operations have slowed in the region and today the mill largely sits idle. If restarted for lumber production, it is anticipated that the mill will either remain owned by Nelson Enterprises, LLC or will be purchased by the Village of Napaimute.

Timber Harvesting

In 2008, the Village of Napaimute established one of the first sizable businesses in the region to harvest local timber for firewood. Napaimute's experience over the last decade developing its firewood business has helped to increase its core competencies in timber harvesting. Napaimute has the necessary harvesting equipment and manpower to support a timber industry in the region. Napaimute is now interested in expanding its business to provide lumber for integrated truss production in the Y-K Delta⁵⁰.

At present, there is a strong demand for firewood in the Y-K Delta. Much of the population lives in villages located on the Lower Kuskokwim and the coast, where trees are scarce. This leaves these communities dependent on firewood harvested from upriver communities. Firewood is useful throughout the region for home heating and steam bathing, which is a common solution to the lack of running water in many of the region's communities. Napaimute believes that the current supply of cut firewood in the region is not meeting demand.

⁴⁹ AVCP Meeting Notes, January 2015, Case Nelson

⁵⁰ Mark Leary, Village of Napaimute, Personal Communication

B. Proposed Opportunity

Due to the high costs of shipping raw materials to the region, an opportunity exists to use locally sourced lumber in the supply chain for an integrated truss plant located in Bethel. This would have the benefit of reducing shipping costs, creating local jobs and keeping money and other resources in the region.

The present analysis has shown that the delivery cost for sourcing lumber from Anchorage to Bethel is approximately 23 percent to 42 percent of the cost of raw materials, depending on the size of lumber and the vendor chosen. When shipping fully constructed trusses to Bethel, delivery costs can rise even more – to as high as 60 percent of total cost. While Alaska's high shipping costs often negatively impact the feasibility of local production facilities, in this case the high shipping costs to rural Alaska may present the opportunity for the development of an insulated, local lumber market. While it is unlikely that the lumber operation would be cost competitive if exporting outside the region, it may be able to meet the local lumber demand of the Y-K Delta region at an affordable price.

The sawmill would likely operate seasonally during the summer months between May and October. This would allow raw materials to be transported to the mill via the Kuskokwim ice road during the winter, and then processed during the summer. It is anticipated that partially dried lumber would then be transported to Bethel via the ice road in winter. Once in Bethel, the lumber would receive its final processing and drying so that it could be graded. By locating the primary lumber yard in Bethel, it is anticipated that inspection costs would be reduced. Alternately, however, AVCP and the sawmill could also choose to have grading and drying take place in Chuathbaluk. In Bethel, AVCP would then utilize this lumber supply to manufacture integrated trusses. It is anticipated that the timber harvesting operation would occur primarily in during the winter months when travel to the project site is easiest.

C. Necessary Equipment

While the sawmill already has some of the capabilities necessary to successfully support a lumber industry in the region, several additional pieces of equipment will be required in order for the sawmill to supply AVCP's proposed integrated truss plant. The total estimated cost of needed equipment is \$59,850. For the purpose of this financial analysis, it is assumed that the sawmill will be able to secure a grant to cover the capital costs of needed equipment. Specific equipment needs and costs (including delivery) are detailed below:

Mid-Sized Front-End Loader (\$39,900) – The sawmill will require a mid-sized front-end loader. The loader will serve as a backup when existing equipment fails, needs maintenance or is otherwise unavailable to be used in the sawmill operation. Case Nelson from Nelson Enterprises recommended this equipment. This estimate is for a used model, which costs approximately \$30,000, plus nearly \$10,000 in shipping costs to Chuathbaluk.

Wood-Fired Boiler (\$19,950) – Using a wood-fired boiler for heat and power at the sawmill facility will help to reduce overall operational expenses. Waste material and scraps leftover after sawing logs into dimensional lumber can be used to fuel the boiler, solving an operational concern while lowering costs.

Mid-Range Re-Saw (\$35,000-\$55,000) – Re-saws provide the ability to efficiently cut large diameter timber into the necessary dimensions for lumber. Re-saws are essentially large band saws that can improve the efficiency of a lumber cutting operation by reducing the amount of time spent using a sawmill to make lumber and increasing daily board foot capacity. During the course of UACED's research,

it was unclear whether a re-saw would be essential for the sawmill operation to be successful. The current mill owner has suggested that this piece of equipment is necessary, while foresters familiar with the Chuathbaluk mill believe that the existing equipment is likely sufficient. As a result of these conflicting findings, UACED has excluded the cost of a re-saw from the pro forma financial statements. If a re-saw is needed for operations, its cost is estimated at between \$35,000 and \$55,000 including delivery and setup. If at all possible, the sawmill operation should refrain from purchasing a re-saw until production levels are high enough to warrant its purchase.

All quoted prices assume that the equipment will be able to be sourced in good, used condition. Purchasing used equipment will allow the mill to keep costs to a minimum during the initial operations of the facility.

D. Staffing

Even if peak production capacities are reached at the Chauthbaluk sawmill, local lumber production will still be significantly less than that found at sawmills outside Alaska. For instance, the average milling capacity at the largest Oregon sawmills is as high as 110,000,000 board feet, approximately 320 times more than the anticipated peak production of the Chauthbaluk sawmill.⁵¹ As a result, the Chauthbaluk sawmill will not require the same level of staffing as is required by larger mills.

Even at peak production levels forecast in this study, the Chauthbaluk sawmill will likely only require one full time mill operator to be employed by the facility. The mill may, however, require the assistance of additional employees to handle the loading and offloading of raw materials and finished goods. AVCP and the local mill operator will also need to determine whether they wish to dry the lumber in Chauthbaluk or in Bethel. It is likely that managing the lumberyard and stacking lumber will require additional staffing. The sawmill itself will only require one direct position, however, the sawmill operator. Despite it being possible to operate the mill with a single employee, UACED has assumed that two employees will be utilized for sawmill operations. This will allow for a replacement employee in the event that the primary employee is unable to work at the mill. Furthermore, this additional employee will help to improve production of the mill.

It is also anticipated that the sawmill will require some level of managerial expertise. The sawmill manager will primarily be responsible for regulatory concerns and identification of new markets for lumber. The sawmill manager will also be responsible for building relationships with necessary partners for the success of the milling operation.

Sawmill Operator

Sawmill operators are responsible for operating, monitoring, and controlling the equipment of the sawmill. They are responsible for sawing logs into rough lumber, as well as trimming and planing the rough lumber into final dimension cuts of various sizes. Sawmill operators are responsible for operating

⁵¹ Oregon Softwood Lumber Industry 1995-2012: Fewer Mills and Jobs, but Larger Timber Processing Capacity <http://static1.1.sqspcdn.com/static/f/797309/22062915/1362107440963/LOP19ORSOftwoodLumberMillingCapacity.pdf?token=7A8onSbQJSVKUuXFZeag93baTEA%3D>

front-end loaders to feed logs into the mill, examine logs and cut lumber to determine size, condition and quality, and monitor the logs as they go through the mill⁵².

Sawmill operators are semi-skilled positions. Although they do not require formal college training, training in wood processing technology is useful. It is also recommended that sawmill operators have a minimum of several weeks of on-the-job training.

According to the U.S. Bureau of Labor Statistics, wages within the wood products manufacturing industry average \$18.45 per hour nationally as of April 2015.⁵³ Adjusting for the higher wages offered in Alaska due to the state's higher cost of living, a wage of \$22.00 an hour for the Chauthbaluk sawmill operator is recommended. Other jobs involved with the lumber yard aspect of the business would pay considerably less, closer to \$18 an hour, which would be comparable to other unskilled manual labor positions in the region.

E. Key Risks

The operation of a successful timber harvesting and sawmill operation in rural Alaska is a challenging endeavor that carries a number of risks. It will be important for the sawmill owners to address as many of these risks as possible in order to ensure successful long-term operations moving forward.

Power of Buyers

One of the most prevalent risks associated with the establishment of a lumber operation in the Y-K Delta is the small number of potential customers for the product. Most home construction in the region is paid for with state or federal funds. These buyers are typically required to follow International Construction Code standards for lumber quality, which means local lumber must be formally graded to be sold for this purpose. Procurement rules often dictate the price that can be paid. Local lumber will only be competitive if it offers a price advantage over other lumber sources. Given the vast economies of scale found at mills in the Lower 48, even with the high cost of shipping to rural Alaska it will be difficult (although not impossible) to compete with these operations on a price basis. In order to supply local buyers, the sawmill operation will need to operate on extremely small margins and economies of scale, which will be difficult.

It is important to note that the local sawmill will have a major partner, AVCP's integrated truss plant. This is likely the only major customer for the mill's lumber, however, which brings with it a number of challenges. One such challenge is that the truss plant will have significant buying power over the mill. The truss plant customer could demand lower prices and the sawmill would have relatively little ability to resist due to its reliance on the truss plant as a customer.

While these scenarios are unlikely due to the collaborative nature of the project, they must be addressed in order for all parties to be aware of potential pitfalls. One method of protection that the sawmill could use is to operate the mill using forward contracts in which the lumber supply is purchased one year in advance. This will ensure that the truss plant purchases the mill's product prior to

⁵² Sawmill Machine Operators (Job Description) – Emploi Quebec --

http://imt.emploi.quebec.gouv.qc.ca/mis/inter/noncache/contenu/asp/mis122_descrproufession_01.asp?cregn=QC&lang=ANGL&prov=FPT&oro=9431&Porte=1&PT1=36&PT2=17&PT3=9

⁵³ Data was unavailable for the State of Alaska due to too few jobs within wood products manufacturing in Alaska. As a result, an adjusted national average was used in this calculation.

production. This arrangement will benefit the truss plant and the sawmill since prices can be agreed to in advance, creating price stability for forecasting. It also reduces the possibility of the sawmill producing high volumes of lumber without a buyer in place. This type of an arrangement also makes sense given that the sawmill will need to carry significant inventory because lumber requires nearly a year to dry to the required moisture content.

Logistical Risks

The local sawmill operation will also be subject to a number of logistical risks stemming from area transportation challenges. One of the major logistical risks is the reliance on the ice road for delivery of final products and raw materials. In an unseasonably warm year, the river may not permit the ability to transport supplies quickly enough to their final destination. This may require transporting materials by barge occasionally, which would drive up costs.

Low Lumber Yield

Another challenge for the sawmill will be the ability to create graded framing lumber that meets the quality requirements set forth by the American Lumber Standards Committee to qualify as grade 2 lumber or higher, which is required for Machine Stress Rated (MSR) lumber. Our analysis uses an estimate that approximately 80 percent of cut lumber from the region will yield lumber of grade 2 or higher. This estimate is based on the opinion of a timber expert familiar with Interior Alaska spruce, who felt that an 80 percent yield rate would be comparable to what is found in the Interior.⁵⁴ The specific yield rate will not be fully known until further information is gathered, however. It would be wise to perform a thorough timber analysis or trial run to determine a more accurate yield rate for lumber in the region. If the yield rate winds up being lower than expected, the sawmill would be faced with increased costs and a smaller supply of higher value lumber, which would impact the sawmill's financial viability.

F. External Lumber Markets

A key consideration for the sawmill operation in Chuathbaluk will be identifying market opportunities for the dimensional lumber produced that does not reach the grading requirements necessary to serve as structural lumber (grade 2 or better). For the purposes of this analysis, UACED has calculated grade 3 and lower lumber sales at a rate of \$13.00 per piece of 2" x 6" x 20', approximately 65 percent of the price charged for grade 2 and better lumber from within the region. This assumption was made to serve as a conservative estimate for the revenue potential of the sawmill since similar wood species sell grade 3 lumber at closer to 70 percent of the price of grade 2 and better lumber. The current scope of the feasibility analysis and business plan focused solely on selling the lumber to AVCP for use in integrated trusses; opportunities beyond this level of demand certainly exist, but are outside the scope of this analysis.

These assumptions are based on the current structure of the residential construction market in which whole-home packages are purchased from suppliers outside the Y-K Delta and shipped to the region for home construction. The accompanying financial models assume that most non-truss lumber used in home construction will be sourced from these companies. If the sawmill is able to work with AVCP to develop cold climate building packages, there may be an opportunity to use local lumber for siding or other construction applications that do not require grade 2 or better lumber, which could open up additional sales.

⁵⁴ Personal Communication, Allen Brackley, USFS, 06/01/2015

Other Market Segments

In addition to the potential uses outlined above for non-grade 2 or better lumber, there are several other smaller local markets available as well. Lumber for temporary shelters, fish camps, dog houses or sheds could be sold to individual customers, although these applications are not likely to result in a significant level of demand. It is anticipated that these “other” markets will serve as a small, supplemental source of demand for the lumber produced.

One possible customer that has been identified is the “winter trail-marking project.” The trail-marking project utilizes shelters that measure 10’x12’. These trail marking shelters could then also be repurposed to serve as summer fish-camp shelters. While this is likely not a large source of demand, it represents an additional possible source of income to the sawmill’s lumber operation.⁵⁵

G. Location and Logistics

The sawmill is located in the community of Chuathbaluk, Alaska. Chauthbaluk is situated on the banks of the Kuskokwim River approximately 100 miles upriver from the regional hub community, Bethel. Chauthbaluk began as a summer fish camp in the mid-1800s, and has seen several name changes throughout the years. The name of “Chuathbaluk” was derived from a Yup’ik word meaning “the hills where the big blueberries grow.”

The 2010 population for the community was 118 people. The community is predominantly of Native descent, with 91.6 percent of the community identifying as Alaska Native. Nearly 17 percent of the community’s residents live under the poverty level, while the community has a median household income of \$34,286.

Logistics

It is anticipated that the Chuathbaluk sawmill will need to take advantage of the seasonal nuances of Southwest Alaska. Specifically, access to Chuathbaluk is dependent on the ice road on the frozen Kuskokwim River during winter months. This ice road will serve as an efficient thoroughfare on which raw timber logs can be delivered to the sawmill. The ice road will also provide delivery to Bethel of finished goods that can be used in the construction of integrated trusses. Given this reality, Chuathbaluk will be dependent upon the regular freezing of the Kuskokwim River to provide access throughout the transport season. Poor ice conditions may impact the sawmill’s ability to deliver lumber at anticipated prices. In the event that ice conditions are unsuitable for transportation of materials, a barge will be needed for shipping the products to their destination, drastically increasing shipping costs.

⁵⁵ AVCP Meeting Notes, January 2015

XI. Implementation Strategy

One of the most important considerations for a local lumber production facility is the development of an effective implementation strategy. It is worth noting that a number of foresters expressed skepticism over the viability of a local lumber operation within the Bethel region. These concerns primarily focused on the following issues: lack of scale economies; need for lumber grading and certification; low yield potential (inability of local lumber to meet grading requirements); and challenges associated with selling or disposing of waste wood material. These are very real concerns that affect the viability of a successful sawmill in the region. A proper implementation strategy will address these concerns while simultaneously setting the business up for long-term success.

One possible way to remedy these concerns would be to adopt a multi-phased approach to local lumber production. This strategy would allow the sawmill to increase its core competencies and establish whether it is able to meet the necessary grading requirements for Machine Stress Rated lumber. This approach would likely result in early operational losses, but would greatly minimize the overall downside risk for the sawmill operation. A phased-in approach would involve the following stages:

Initial Stage – Trial Period

During the “trial period” stage, the Chuathbaluk sawmill would focus on producing small batches of local lumber. The mill would focus on low production runs, building expertise in lumber production and establishing whether it is possible to produce lumber at a high enough yield rate to meet grading requirements for trusses. This phase would also reduce working capital constraints on the sawmill operator. Since lumber must be produced one year in advance of when it is actually sold in the region (due to the amount of time it takes to dry lumber to the required moisture-content levels under the climatic conditions in Southwest Alaska), a lumber production facility would essentially need the working capital to handle significant levels of inventory as it reaches the point to which it can be sold to the consumer. It is anticipated that this phase will require 2-3 years. The first year would be the initial cutting and drying, while years two and three would allow the mill to see whether or not the lumber meets necessary requirements. If costs are an especially pressing concern, it is possible that the sawmill could begin this stage without purchasing a wood-fired boiler and front-end loader. Once the sawmill then determines that lumber production meets the criteria necessary to be profitable, these investments could be made.

Mass Production Stage

If the local sawmill demonstrates that it can produce lumber at a high enough yield rate to be successful, the mill can then begin to focus on the mass production of local lumber. At this stage, the mill would begin to invest in the equipment needed for higher levels of production, and could perhaps approach a funding entity about a working capital loan to drastically increase production capacity to meet the needs of AVCP. It is anticipated that annual production at this stage could approach 320,000 board feet or more. The sawmill may then also increase production to meet other sources of local lumber demand in the Y-K Delta.

This multi-phase approach allows the Chuathbaluk mill to test its ability to meet the requirements of the truss plant without making significant capital investment in equipment or inventory. It will also allow the local mill to slowly identify other local markets that can serve as customers for its product offering.

XII. Timber Analysis

A core component of a thorough analysis of the feasibility of a timber products supply chain supporting the production of integrated trusses in the Y-K Delta is an assessment of local timber resources in the region. Unlike forests in the Lower 48, Y-K Delta forests possess a lower density of timber available for harvesting. Furthermore, the harvestable local timber is also older in age, which can negatively impact its ability to be milled into dimensional, graded lumber of grade 2 or higher.

The analysis of the local timber supply for use in the production of local, graded lumber centers around three key questions that affect overall project feasibility:

1. Are there enough timber resources to supply the volume of lumber the truss plant requires?
2. Would the resource owner (The Kuskokwim Corporation) be interested and willing to offer harvest rights to this resource?
3. Could the timber be harvested and converted to dimensional lumber at a price that is comparable to that found in the lower 48?

A. Timber Supply – Is it Adequate?

In short, yes. There are enough timber resources on the Kuskokwim to supply the needs of the truss plant for the foreseeable future. The truss plant in Bethel will use around 270,000 board feet of grade 2 or better lumber annually. Because only approximately 80 percent of what is harvested will meet quality standards to earn a grade 2 or better rating, it is also anticipated that the sawmill will produce at least 67,000 board feet of grade 3 and lower lumber each year. In his 1979 survey of the timber resources in Kuskokwim drainage, Karl Hegg estimated the annual allowable cut (the amount of timber that can be harvested sustainably) for the drainage was 16.3 million board feet.⁵⁶

While the Hegg survey indicates that there is more than enough timber on the Kuskokwim, it also points out that the river has two distinct harvest regions, the upper and lower river. The Upper Kuskokwim is the area east of the Kuskokwim Mountains including areas near McGrath and Stony River, as well as the Holitna River drainage. This area holds the majority of the timber resources, but is more difficult to access from Bethel. Although this area holds more, better quality timber than the Lower Kuskokwim, challenges associated with accessing the area and delivering timber from there to Chauthbaluk impact the feasibility of its use.

This study has specifically looked at the more realistic option of supplying lumber cut on the Lower Kuskokwim River near Naipaimute and Aniak. This area lies west or downriver from the Kuskokwim Mountains, is more accessible from Bethel, and residents already have experience with small logging and milling operations. However, this area has significantly fewer timber resources than the upper river. Despite this, concentrated pockets of timber exist that may yield timber volumes large enough to support the needs of the truss plant. For instance, although the bulk of the timber resources in the region are found in the upper river, the board foot volumes per acre for those areas that are commercially viable in the lower Kuskokwim are 6,700 net board feet per acre. Since the most recent assessment was conducted in 1979, however, it is possible that these yield rates per acre are now

⁵⁶ Karl Hegg, Timber Resources of the Upper Kuskokwim Flood Plain, December 1979

higher. It is recommended to perform a thorough assessment of timber in the proposed region to determine specific harvest yields for the harvest site.

Hegg estimated that commercial stands of timber on the Lower Kuskokwim would yield around 6,700 net board feet of white spruce per acre.⁵⁷ Not all of this lumber will be grade 2 or higher, however. If 80 percent of the white spruce lumber from the Lower Kuskokwim will be grade one or two, then each acre will yield roughly 5,600 board feet of grade 2 or better lumber. At that yield rate, 50 acres of timber would have to be harvested annually to meet the requirements of the truss plant at peak operations in year 10. Hegg estimated that there were 17,700 acres of commercially harvestable forest and 28,400 acres of "operable" non-commercial forests on the Lower Kuskokwim in 1979.⁵⁸ Operable, non-commercial land includes stands of trees that are mature, and could be harvested but do not meet the annual growth necessary to be sustainable. Hegg pointed out in his study that harvesting operable non-commercial stands might be desirable given that white spruce is a climax commercial species in the Kuskokwim drainage and if they are not harvested they tend to cool the soil and then give way to black spruce. In their 1988 report on the prospects for the forest industry in Interior Alaska, George Sampson and Willem van Hees indicated that by scarifying areas where timber has been harvested, land owners might be able to create more valuable, contiguous stands of white spruce.⁵⁹ So, harvesting mature white spruce stands, even if the stands are not sustainable, might be the best option from a forest management standpoint. Regardless of whether operable non-commercial stands are harvested, Hegg's 1979 estimates indicate that there is clearly enough timber on the Lower Kuskokwim to support the truss plant's needs for the foreseeable future. It is worth noting, however, that a significant assessment of Kuskokwim timber has not been completed in several decades. If possible, it is recommended to have a local timber assessment completed before investing significantly in sawmill operations.

While harvesting white spruce may be a good management strategy, there are risks that white spruce will not regenerate well. Both Hegg's survey and a more recent study of the effects of climate change on white spruce regeneration conducted by Stephen Wilson in 2008 indicate that white spruce on the Lower Kuskokwim may not regenerate as quickly as on the Upper Kuskokwim and other parts of the Interior. Hegg found very few seedlings and young trees. Wilson estimated that climate change would negatively affect the rainfall and temperatures on the Lower Kuskokwim, making it harder for white spruce to reproduce.

B. Would the Resource Owner Grant Harvesting Rights?

Questions of regeneration and forest management are important to the owners of the forest resources. By far the largest owner of these resources in the region is The Kuskokwim Corporation (TKC), which was formed in 1977 by merging 10 village corporations in the Y-K Delta: Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Napaimute, Crooked Creek, Georgetown, Red Devil, Sleetmute and Stony River. TKC owns

⁵⁷Hegg p. 8

⁵⁸Hegg, p. 4

⁵⁹ Sampson p. 21

the surface rights to 950,000 acres including all of the land along the Kuskokwim from 20 miles below Lower Kalskag to 20 miles above Stony River.⁶⁰

During discussions with The Kuskokwim Corporation, they expressed a willingness to negotiate an agreement with a local harvester to allow them to access TKC timber for use in the Bethel integrated truss plant⁶¹. It is anticipated that harvesting rights to the land would be charged at a rate comparable to the current rate of approximately \$20 per cord. In terms of lumber board feet, a comparable fee would be approximately \$40 per 1,000 board feet. This would have an overall negligible impact on the feasibility of supplying local timber and lumber to the truss plant. It is worth noting that TKC has an existing agreement in place with the Village of Napaimute to harvest local timber for the sale of firewood.

C. Is Local Lumber Price Competitive?

Sampson and van Hess evaluated the competitiveness of Alaska-produced lumber in their 1988 study Potential for Forest Products in Interior Alaska. They noted that Alaska lumber faced stiff competition from Canada and the Pacific Northwest. At the time of their study, Canadian lumber was flooding the U.S. market due to the low exchange rate. In addition, both Canadian and Northwest lumber had other advantages over locally produced lumber. First, timber resources are more concentrated and easier to access in Canada and the Pacific Northwest. Additionally, sawmills in these areas have achieved large economies of scale that allow them to spread the cost of planing, grading and kiln drying their lumber over much larger volumes. Lastly, these regions also have weather that is more conducive to air drying as opposed to kiln drying, which further decreases costs of production. By 1982, sawmills in Oregon able to process 120,000 board feet in a shift had taken 89 percent of the market.⁶² Sampson and van Hess pointed out that:

“Some of Interior Alaska’s small mills have planers; most do not have dry kilns. Mills with low production cannot economically have kiln drying and lumber grading capabilities. Both fixed costs and operating costs decrease per unit of volume from the smallest kilns to the largest kilns (Rosen 1980, Shottafer and Shuler 1974). Each mill that is a member of an existing lumber-grading agency must pay a periodic cost of certifying their grader(s) as well as an assessment based on volume graded.”⁶³

They went on to observe that “only two cost components potentially provide Interior Alaska producers an advantage over the Lower 48 and Canadian producers: stumpage costs and lumber transport costs.”⁶⁴ (Stumpage refers to the charge assessed by a private landowner in exchange for lumber harvested on its land.)

⁶⁰ <http://www.kuskokwim.com/content/land-use> accessed April 7, 2015

⁶¹ Meeting with Andrea Gusty, The Kuskokwim Corporation, 03/26/2015

⁶² Sampson p. 13

⁶³ Sampson p. 13

⁶⁴ Sampson p.14

These challenges significantly impact the ability of local mills to compete on price with outside suppliers. Successful price competition locally will require the ability to identify local markets for non-grade 2 lumber. Selling this lower-quality lumber will contribute to the mill's profitability, decreasing the per-unit fixed costs that must be absorbed by the lumber used in the production of integrated trusses.

XIII. Sawmill SWOT Analysis

Based on a situational analysis, the Chuathbaluk sawmill's internal strengths and weaknesses as well as external opportunities and threats are identified and listed below. The graphic below synthesizes the full analysis into a simplified format; however, it is important to remember that items in the different categories do not necessarily bear the same weight. The basic idea of a SWOT analysis is that the business or enterprise needs to capitalize on its strengths while minimizing its weaknesses and take advantage of identified opportunities while countering threats.

	Beneficial	Harmful
	Strengths	Weaknesses
Internal	<ol style="list-style-type: none"> 1. Knowledge and experience with Y-K Delta timber harvesting and sawmill operations 2. Existing equipment in place to handle operations 3. Close relationship with The Kuskokwim Corporation as well as AVCP 4. Close proximity to end destination can allow for reduced shipping costs. 	<ol style="list-style-type: none"> 1. Sawmill has not been operational for some time 2. The sawmill does not currently have the internal capabilities to produce graded lumber
	Opportunities	Threats
External	<ol style="list-style-type: none"> 1. Local demand for firewood is likely not currently being fully met (growth opportunity) 2. AVCP truss plant would create a reasonable market for local lumber (160,000+ board feet annually) 3. Grants may be available to help scale up production 4. The Kuskokwim River provides relatively easy transportation routes to harvesting site as well as Bethel. 	<ol style="list-style-type: none"> 1. Lower 48 lumber can generate high economies of scale, reducing price 2. Getting local lumber graded would be expensive and logistically challenging 3. Sawmill would be providing lumber for essentially one customer (AVCP) 4. Logistical challenges can arise due to early thawing of river, or regional flooding

XIV. Financial Analysis

The Chuathbaluk sawmill project relies on several key assumptions in the development of comprehensive financial statements. In an effort to help inform project partners of the underlying financials to the project, these various assumptions have been outlined below.

A. Income Statement Financial Assumptions

Revenue

The Chuathbaluk sawmill's revenue is derived from two primary sources, the sale of structural grade lumber (defined as grade #2 or better) to the AVCP truss plant, and the sale of non-structural lumber (defined as grade #3 and below) for use in non-structural components of home construction as well as other local lumber demand. In generating revenue assumptions, information was utilized from the CCHRC pre-feasibility analysis and other sources. Revenue projections are based on the number of trusses needed in a typical house. The assumptions utilized in calculating revenue include the following:

- ❖ A "standard" house will be 1,092 square feet and will require 19 integrated field trusses and four integrated gable trusses. Each home construction would require 189 pieces of 2" x 6" x 20' lumber, for a total of 3,780 board feet for each house. Specific dimensions for a "standard" home are 26' x 42' and are a typical model designed by CCHRC.
- ❖ Based on information gathered from discussions with forestry experts⁶⁵, it is assumed that 80 percent of all lumber milled in Chuathbaluk would meet the grading requirements necessary to be classified as grade #2 or better for use in integrated trusses⁶⁶. This means that 20 percent of all lumber produced would not meet the grading requirements necessary for use in AVCP's truss plant. If this assumption is correct, then in order to meet the annual lumber demand for trusses, the sawmill would have to produce approximately 25 percent more lumber than the amount of board feet required for trusses alone. It is anticipated that timber will be purchased per 1,000 board feet based on a log scale such as the Scribner Scale.
 - It is assumed that grade #2 and better lumber could be sold at a price of \$19.80 per piece of 2" x 6" x 20', which is a comparable price to what would be found in the lower 48 when delivery to Bethel is factored into the price. While specific lumber pieces required for home construction will use more than simply 2" x 6" x 20' pieces of lumber, this size was used as an overall estimate of the lumber costs for construction.
 - For lumber of grade #3 and below it is assumed that the plant would be able to make use of some of this lumber for non-structural components of home constructions such as siding and shelving. Additionally, other demand could be found from the local market for other lumber needs. Due to the lower quality of this lumber, it is anticipated to sell at a rate that is 65 percent of the price for #2 and better lumber. This is a somewhat conservative estimate based on the price differentials between different lumber grades for other species of wood, which

⁶⁵ Interview with Allen Brackley, USFS, 06/01/2015

⁶⁶ 80 percent yield is a figure that is common for Northland Wood Products in Fairbanks. Although Bethel has no perfect comparison, Fairbanks was seen as the best proxy for lumber yields in the Y-K Delta.

typically have grade #3 selling at approximately 70 percent of grade #2 prices.⁶⁷ Therefore, the same piece of 2" x 6" x 20' lumber would sell at a rate of \$13.00 per piece.

Utilities and Trash Disposal Expense

Utilities and Trash Disposal Expense was calculated based on the following assumptions:

- ❖ Electricity consumption was estimated to be approximately 4,800 kilowatt hours per month of operations, a year one work season that would include 89 hours of sawmill operations, and a local electricity rate of 61 cents per kilowatt hour.⁶⁸ The national average electricity consumption for US sawmill operations was 2.1 percent of sales in 2013.⁶⁹ At projected rates for gasoline and electricity, the Chuathbaluk sawmill has electricity and gasoline costs of approximately 6-7 percent of sales. Over time it is anticipated that the sawmill will attain energy savings through utilization of a wood-fired boiler. In an effort to maintain conservative assumptions, these effects were minimized in this analysis. Full boiler utilization would result in lower electricity costs.

Service and Repair Expense

It is estimated that service and repair expense is approximately three percent of sawmill revenue in year one. Year one expense is \$2,000, with subsequent years including a three percent inflation rate.

Timber Expense

The primary input cost for the manufacturing of lumber is timber. To calculate the cost of raw material timber, the consulting team calculated the total board feet of lumber demand projected for the truss plant. This figure was then adjusted to account for the fact that only 80 percent of lumber that is milled will meet the necessary structural grade required for use in truss construction (grade #2 or better). As a result, a year one demand of 55,481 board feet of lumber was projected. This amount of board feet was then multiplied by the prevailing market rate for purchasing raw material timber. The prevailing timber rates mentioned by forestry experts is \$300 per 1,000 board feet of timber harvested and delivered in Alaska. To be slightly more conservative, a rate of \$333 per 1,000 board feet of timber was used. Year one timber expense is estimated at \$18,475.

An important factor to consider that was not included in this analysis is over-run. When timber is scaled, conservative estimates of the expected board foot yield of the timber are used, such as in the Scribner Scale. This is often seen as a "worst case scenario" board foot yield from a piece of timber. Skilled mill operators are often able to produce more board feet of lumber than a typical log scale would estimate. Therefore, skilled mill operations could allow the sawmill to generate an extra 10-20 percent of lumber that would not be included in these calculations, essentially amounting to "free" lumber. In an effort to maintain conservative assumptions, the study assumed that over-runs would not take place, when they often do take place in practice.

⁶⁷ http://www.randomlengths.com/UserFiles/Pages/f7f43c90-4c91-4abc-a1d8-47f5de26300d7/22e90bdf-35b5-4a2d-a7be-c8dbd158bfd6/RL_Lumber_Weekly_Price_Changes.pdf

⁶⁸ Rates derived from Power Cost Equalization Program report, 2013

⁶⁹ 2013 US Census Annual Survey of Manufacturers

Insurance Expense

Insurance Expense is calculated by factoring in three different types of insurance necessary for the Chuathbaluk sawmill. These three different insurance types include general liability insurance, property insurance, and worker's compensation insurance.

General liability insurance was calculated as a variable expense at a rate of \$7 for every \$1,000 in sales. To calculate this expense, the consulting team contacted Bowermaster Insurance out of California. Bowermaster is licensed to write policies in Alaska and has experience working within the wood products manufacturing industry. When contacted, Bowermaster cited a figure of \$4-\$6 per \$1,000 of sales as a standard, conservative industry rate⁷⁰. In an effort to further temper assumptions, an even more conservative figure of \$7 per \$1,000 in sales was used. It is also worth noting that Bowermaster's quote was confirmed by Arizona-based Mohave West Insurance Agency, which has an office in Haines and also specializes in the wood products industry.

Property Insurance rates were also gathered from Bowermaster Insurance and confirmed by Mohave West Insurance Agency. Bowermaster based its estimate on a total property value of \$700,000 and estimated an insurance expense of between \$3,500 and \$7,500. Final estimates for total insured property include \$45,000 worth of capital equipment along with year one inventory on hand of \$65,613. Given that the sawmill will need to maintain an up to a year's worth of inventory while the lumber is drying before being sent to Bethel, it was estimated that inventory on hand would be equal to total annual sales for that particular year.

Bowermaster, as well as Mohave West Insurance Agency, was also contacted regarding their estimates for workers compensation insurance. In an effort to generate conservative estimates, the consulting team calculated workers compensation rates based on the prevailing base rates in Washington state. The prevailing rate in Washington for "Sawmill Operations" is \$2.20 per labor hour⁷¹. This figure was then adjusted based on information that Alaska's workers compensation rates are typically 24 percent higher than those found in Washington⁷². As a result, the consulting team based its workers compensation rates at a rate of \$2.73 per labor hour. This figure is in line with those quoted by the insurance companies contacted for the study.

Delivery Expense

This expense includes the cost of delivering the raw materials to the plant. This expense factors in the cost for renting a transport vehicle from Bethel, the salary for the delivery driver, and the fuel consumption of the transport vehicle. It was assumed that the transport vehicle would average three miles per gallon with a full load, and seven miles per gallon while empty. Fuel costs were estimated at \$7 per gallon. Year one delivery expense was estimated at \$6,305, based on 19 deliveries at 50,000 pounds of capacity per delivery. After talking to the owner of the only equipment and vehicle renting business in Bethel, it was assumed that the rental rate will be approximately \$187.50 per day. This is based on the average rental price in Anchorage, plus a 25 percent premium.

⁷⁰ Corey Krovciak, Bowermaster and Associates Insurance, Personal Communication, March 13, 2015

⁷¹ "2015 Composite Base Rates by Risk Classification,"

<http://www.lni.wa.gov/ClaimsIns/Files/Rates/2015RatesBusTypeClassCode.pdf>

⁷² "2014 Oregon Workers' Compensation Premium Rate Ranking Summary," Jay Dotter and Mike Manley, October 2014, http://www.cbs.state.or.us/external/dir/wc_cost/files/report_summary.pdf

Lumber Certification Expense

This expense covers the necessary certifications required for producing dimensional structural lumber for the truss plant. This expense was based on four inspections annually at a cost of \$2,000 per inspection. This was the figure quoted by the WWPA.

Payroll Services Expense

Payroll Expense was based on the prevailing market rate. This rate is calculated using a base rate of \$40 plus an additional \$45 for each employee on the payroll. This payroll expense occurs for each employee pay period. With two employees, this factors out to \$265 in year one.

Management Expense

Management Expense is based on a total need of 400 hours for year one, with an estimated annual hourly increase of 5 percent. The manager's role will be to promote the product to the necessary partners within the region, including state and federal funding agencies. The manager will also be responsible for sourcing raw materials, hiring and terminating employees, and identifying new market segments for the business. The manager will primarily be functioning in a regulatory and business development role. The manager will be responsible for marketing local lumber to prospective buyers who are not affiliated with the AVCP/CCHRC operation.

Sawmill Operator Expense

Sawmill Operator Expense was based on a year one requirement of 89 labor hours. This was based on information received from the current sawmill owner that states that the mill can produce 10,000 board feet of lumber per day⁷³. In an effort to be conservative, this study's analysis assumes that the mill will only produce at a rate of 5,000 board feet per day. This will help to account for employee breaks, inefficient operations as employees learn the equipment, and other inefficiencies that develop during operations. The sawmill manager will be responsible for overseeing all major operations of the mill.

Support Employee Expense

Support Employee Expense was based on a year one requirement of 89 labor hours. This was based on information received from the current sawmill owner that states that the mill can produce 10,000 board feet of lumber per day. In an effort to be conservative, this study's analysis assumes that the mill will only produce at a rate of 5,000 board feet per day. This will help to account for employee breaks, inefficient operations as employees learn the equipment, and other inefficiencies that develop during operations. The support employee would help with loading raw materials, operating the mill when the manager is not available, and with lumber stacking, among other responsibilities.

Benefits and Payroll Tax Expense

Benefits and Payroll Expense is calculated using prevailing fringe benefit rates of 40 percent of employee salaries.

Loan Interest Expense

Loan Interest Expense is based on a prevailing interest rate of 5 percent and is used to cover initial working capital needs of the sawmill. It is anticipated that this would require the sawmill taking out a \$20,000 operating loan in year one to maintain positive cash flow.

⁷³ AVCP Project Kickoff Meeting, Case Nelson (Sawmill Owner), January 2015

Depreciation Expense

Depreciation Expense was based on the manufacturing equipment required by the sawmill. In these calculations, depreciation expense will be zero since it is assumed that the capital costs will be financed with a grant. This zero depreciation is due to the fact that organizations are not permitted to depreciate the portion of a piece of equipment financed with a federal grant⁷⁴.

B. Capital Costs

Total capital costs for the project are estimated to be \$45,000 and include the following expenses:

Table 15: Capital Expenses.

Capital Cost	Price (\$)	Delivery (\$)	Useful Life (Years)	Depreciation per year (\$)
Mid-Size Front End Loader	\$30,000	\$9,900	10	\$3,000
Wood Fired Boiler	\$15,000	\$4,950	10	\$1,500
Total	\$45,000	\$14,850	-	\$4,500

It is worth noting that the actual depreciation expenses paid will depend on the level of grant funding contributed toward the project. This is due to the fact that equipment purchased with federal funds is not eligible for depreciation.

⁷⁴<http://i2.washington.edu/fm/mas/recharge/equipment>

XV. Income Statement, Cash Flow Statement and Financial Summary

A. Income Statement (10 Years)

REVENUE									
Lumber Sales Grade 2 and higher, \$	43,941	87,272	137,912	275,631	337,750	303,137	313,890	334,950	351,583
Lumber Sales Grade 3 and lower, \$	7,213	14,325	25,920	45,243	47,238	48,757	53,338	54,964	57,710
Over-Run									
Gross Revenue	51,153	101,596	163,832	320,874	335,028	352,895	371,163	389,964	409,293
Occupancy Expense									
Electricity	2,112	4,037	7,102	11,990	12,110	12,339	12,554	12,759	12,954
Gasoline and Trash Disposal	1,034	2,034	3,646	6,905	6,523	6,811	7,101	7,398	7,700
Total Occupancy Expense	3,145	6,091	10,747	18,295	18,634	19,150	19,655	20,157	20,654
Operating Expense									
Timber	18,475	26,666	66,285	115,629	120,659	126,977	133,450	140,105	146,949
al Fees/Permit Costs/Certification									
Insurance	1,903	3,254	5,453	9,021	9,303	9,677	10,035	10,441	10,833
Delivery	6,203	12,457	22,427	38,953	40,475	42,483	44,425	46,467	48,508
Lumber Certification	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000
Total Operating Expense	34,680	60,978	102,155	171,603	178,417	187,658	195,930	205,012	214,331
Administrative Expense									
Service and Repairs	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Office Equipment and Supplies									
Backkeeping									
Payroll	265	345	345	345	345	345	345	345	345
Total Administrative Expense	2,265	2,345	2,345	2,345	2,345	2,345	2,345	2,345	2,345
Personnel Expense									
Management	15,462	14,599	15,705	17,028	18,436	19,917	21,540	23,266	25,195
Sawmill Operator	1,933	3,365	6,967	13,117	12,605	13,228	13,862	14,511	15,175
Support Employee	1,533	3,162	5,700	9,944	10,313	10,823	11,342	11,873	12,416
Benefitor-Payroll Taxes	6,825	8,684	11,365	15,623	16,534	17,388	18,298	19,272	20,114
Total Personnel Expense	23,817	30,219	39,778	59,568	57,863	61,555	65,043	69,552	73,969
Total Expense before Depreciation	63,908	99,093	155,025	240,925	237,263	270,139	285,373	297,066	311,230
Depreciation and Amortization									
Facilities & Equip. Loan Interest	1,000	819	629	429	220	-	-	-	-
Depreciation									
Total	1,000	819	629	429	220	-	-	-	-
Net Income Before Taxes	(13,755)	1,744	28,179	73,520	77,545	82,756	87,790	92,899	98,069
Income Tax		279	4,772	16,462	17,769	19,985	21,150	21,358	21,602
Income after Taxes	(13,755)	1,465	23,407	57,058	59,776	62,771	66,640	71,541	76,467

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887	1886	1885	1884	1883	1882	1881	1880	1879	1878	1877	1876	1875	1874	1873	1872	1871	1870	1869	1868	1867	1866	1865	1864	1863	1862	1861	1860	1859	1858	1857	1856	1855	1854	1853	1852	1851	1850	1849	1848	1847	1846	1845	1844	1843	1842	1841	1840	1839	1838	1837	1836	1835	1834	1833	1832	1831	1830	1829	1828	1827	1826	1825	1824	1823	1822	1821	1820	1819	1818	1817	1816	1815	1814	1813	1812	1811	1810	1809	1808	1807	1806	1805	1804	1803	1802	1801	1800	1799	1798	1797	1796	1795	1794	1793	1792	1791	1790	1789	1788	1787	1786	1785	1784	1783	1782	1781	1780	1779	1778	1777	1776	1775	1774	1773	1772	1771	1770	1769	1768	1767	1766	1765	1764	1763	1762	1761	1760	1759	1758	1757	1756	1755	1754	1753	1752	1751	1750	1749	1748	1747	1746	1745	1744	1743	1742	1741	1740	1739	1738	1737	1736	1735	1734	1733	1732	1731	1730	1729	1728	1727	1726	1725	1724	1723	1722	1721	1720	1719	1718	1717	1716	1715	1714	1713	1712	1711	1710	1709	1708	1707	1706	1705	1704	1703	1702	1701	1700	1699	1698	1697	1696	1695	1694	1693	1692	1691	1690	1689	1688	1687	1686	1685	1684	1683	1682	1681	1680	1679	1678	1677	1676	1675	1674	1673	1672	1671	1670	1669	1668	1667	1666	1665	1664	1663	1662	1661	1660	1659	1658	1657	1656	1655	1654	1653	1652	1651	1650	1649	1648	1647	1646	1645	1644	1643	1642	1641	1640	1639	1638	1637	1636	1635	1634	1633	1632	1631	1630	1629	1628	1627	1626	1625	1624	1623	1622	1621	1620	1619	1618	1617	1616	1615	1614	1613	1612	1611	1610	1609	1608	1607	1606	1605	1604	1603	1602	1601	1600	1599	1598	1597	1596	1595	1594	1593	1592	1591	1590	1589	1588	1587	1586	1585	1584	1583	1582	1581	1580	1579	1578	1577	1576	1575	1574	1573	1572	1571	1570	1569	1568	1567	1566	1565	1564	1563	1
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XVI. Business Structure

A. Business Structure

This section discusses three aspects of the operation: how the truss plant could be organized, how a local lumber supply operation could be organized; and finally, how to structure the relationship between the local timber harvesting and sawmill operations and truss plant. It is important to note that any decision regarding the legal organization of this business should involve a team of professionals including a lawyer, an accountant, an expert in financing, and an insurance broker. The legal organization of a business affects four fundamental questions:

- ❖ How will decisions be made, including decisions about distributing profits and apportioning losses;
- ❖ How much risk will the owners take on from the operation of the business;
- ❖ How the business will pay taxes; and
- ❖ How will the business raise funds, and the effect of the choice of legal entity on start-up costs.

These issues are interrelated. Investors or grant-making organizations will want to make sure they have a say in how profits are distributed and will want to minimize their risk from the business. So, their willingness to give the business money will depend on how decisions are made, the amount of risk exposure, and the potential tax liability. These questions also inform the inquiry into the different options for legal organization.

Options for the legal organization of the truss plant

In creating a new business there are a host of legal entities to choose from. This study has narrowed the options best suited to the truss plant into three choices: a division of the Association of Village Council Presidents; a limited liability company (LLC); and a subchapter 17 corporation.

Division of AVCP

Organizationally, creating a division within AVCP is the simplest option and could be implemented by a decision of AVCP's board. This option would give AVCP total control over the decision-making at the truss plant, its income stream and how costs will be apportioned. It might also yield some savings by allowing the new business to use some of AVCP's billing, personnel management and executive skills. This, of course, would be placing a greater burden on AVCP's staff and resources.

By far the greatest disadvantage to this option is that AVCP would expose itself to all of the truss plant's risk. These run a wide gamut from the risk of having to repay the truss plant's debts if it fails, to having financial responsibility for injuries to workers, or damages from trusses failing due to a flaw of one kind or another. Some of these risks would most likely be unavoidable regardless of structure. For example, if the truss plant were set up as a separate business, it may well be that any lenders would require AVCP, as a major owner in that business, to cosign loans. The plant should also carry insurance that would cover injuries to workers, and protect it from damage claims from the organizations that buy the trusses. But there is always the chance that insurance will not cover all of the claims or that the truss plant will expose AVCP to risks that it could avoid if the plant were a separate, independent business.

While the truss plant might be able to benefit from AVCP's status as a nonprofit, for example, providing access to government grants, this does not mean that no taxes would be due on the truss plant's profits. AVCP would have to pay tax on income that is not part of its non-profit mission. Having a profit-making division like the truss plant within AVCP would complicate its accounting.

A final consideration in creating the truss plant as a division of AVCP is that it could be difficult to bring in outside investors. Without outside investors the project would depend on loans, grants on internal resources for its start-up funding.

On the whole, the increased exposure to risk and the entire dependence on AVCP to raise capital make this option less desirable.

Limited Liability Company

The simplest way to protect AVCP from the truss plant's risk is to create a separate entity. There are a number of legal entities that create a "liability shield," meaning they limit the owners' liability from the business to the amount of money they have invested. Limited liability companies, corporations and S-corporations all offer a liability shield. The more independent the business, the stronger the protection. As discussed in more detail below, an LLC or S-corporation has tax advantages over a traditional corporation. And an LLC is relatively less complex to set up and more flexible than an S-corporation. But in all of these cases, the effectiveness of the shield depends on how independent the new business is from its investor/owners.

Increased independence, of course, works against the idea of AVCP being in total control over the plant's operation. To get the maximum protection the truss plant would have to have maximum operational independence including its own board and management. While AVCP as a majority owner would be able to appoint board members, this structure creates one more administrative layer between AVCP and the truss plant managers.

Having a separate business raises the question of taxation. One of the major differences between a traditional corporation and an LLC or S-Corporation is that corporations pay taxes twice: first in the form of corporate income tax and again when dividends from profits paid to owners are taxed. LLCs and S-corporations do not pay corporate income tax. Their owners pay tax on the share of the business' profits that are distributed to them. So, their profits are taxed once – as the owners' income.

Having less control to increase liability protection would also mean that the plant would have to be careful about how it used AVCP's existing expertise. Lending expertise in accounting or human resources not only reduces the costs to the plant, it also gives AVCP a window on the truss plant's accounting and decision-making process, making it easier to monitor costs, income and profits. The more AVCP distances itself from these aspects of the truss plant's operation, the harder it becomes to monitor what is happening in the plant. While it might be possible for AVCP to provide these services under contract, the more AVCP and the truss-plant business work together, the weaker the liability protection becomes. In addition to setting up its own management, human resources and accounting systems an independent business needs to be set up by a lawyer and registered with the state. This adds additional cost.

The flexibility afforded by an LLC makes it easier to bring on outside investors. This opens an additional avenue to raise start-up funds. AVCP could still retain control by holding 51 percent of the business, but

could sell smaller shares to other investors. In fact, AVCP could still control the business holding less than 51 percent so long as it maintained the largest share of the business and there was little prospect of the other owners joining together against it. Sharing ownership interest in the truss plant is one way that the potential sawmill or timber owners could be enticed into participating in this project—a topic that is discussed in more detail below.

An LLC offers a number of advantages: it provides a liability shield, it is simple to set up, and has flexibility that allows the ownership structure to be adapted to different financing schemes. Combined, these factors make it a very attractive option.

Subchapter 17 Corporation

Lately, subchapter 17 corporations have attracted a lot of interest from Alaska Native organizations. As a tribal entity, AVCP has the option of organizing the truss plant as a Subchapter 17 corporation. Subchapter 17 corporations are federal entities created through the Department of Interior for the benefit of tribes. The tribal entity must be the majority owner.

A subchapter 17 corporation provides liability protection in the same way as a corporation, LLC, S-corporation. AVCP's risk from the truss plant would be limited to the money it had invested and any additional obligations it had agreed to take on – like cosigning a loan.

Subchapter 17 corporations have the additional benefit of operating tax-free even as they generate profits. As long as the tribal entity is the majority owner, outside investors can own shares of the business. As tribal corporations, subchapter 17 corporations can easily qualify for tribal grant and loans programs. While a tribally owned LLC would probably also qualify for these programs, it would have to demonstrate that it is a tribal business while a subchapter 17 business is by definition a tribal business.

The disadvantage to a subchapter 17 corporation is that as a federal corporation, it is more laborious to set up, including getting permission from the Secretary of the Interior. Another challenge is the relatively rarity of subchapter 17 corporations. As a general rule, banks and other lenders want to lend to businesses they are familiar with and using an uncommon type of business entity might make the process of getting a loan more difficult.

While their tax treatment makes subchapter 17 corporations attractive, that benefit is tempered by the fact that they are harder to set up and are not as flexible as an LLC. For this reason it appears to be a less attractive option.

Sawmill and Timber Operations

The same business-structure considerations as detailed above also apply to the timber harvesting and sawmill operations. While those operations are already organized as independent businesses through Napaimute, it would make sense to re-evaluate how they are organized, as participating in this project will require significant investments.

Both the timber harvesting and sawmill businesses will require significant investment to bring production up to a break-even point, and to produce the dried, planed and graded lumber the truss plant will require. In addition, if the lumber is air dried, there will be a year or more between incurring the expenses of harvesting and sawing the lumber to the time it is sold and used in the truss plant. This delay will increase the capital needed to sustain operations. The relationship between the sawmill and

harvesting operations and the truss plant will be a key element in the sawmill and timber harvesting businesses' ability to raise capital to expand.

Timber harvesting in particular is a dangerous business and carries with it a significant risk that employees will be injured. Therefore, the relationship between the truss plant and these operations will have to take into consideration how to limit the liability of the different parties involved and how to make it easier to raise the capital needed for an integrated operation to be sustainable.

Contract or Joint Venture?

The relationship between the truss plant and the timber harvesting operations can range from arms-length contracts to joint ventures. A contractual relationship provides greater liability protection. A contract that guarantees prices and purchase volumes can also serve as a mechanism for the timber harvesting and sawmill operations to attract investors or get loans to access the capital they will need to support expansion.

Even with a contract to supply lumber to the truss plant, it might be difficult for the small timber harvesting and sawmill operations to access the amount of capital they need to expand to the point where they are sustainable. In that situation, it might make more sense to integrate the timber and sawmill operations into the truss plant to create a vertically integrated company. This could be done in a number of ways, including a joint venture. A joint venture would allow Napaimute access to AVCP's business expertise and lenders and could be structured as its own company with each party a partner. This option is more complex to organize, and would involve AVCP taking on more risk not only from the expanded operations but also the risk inherent in having more of partners.

XVII. Combined Economic Impacts – Sawmill and Truss Plant

The AVCP truss plant project will have significant economic impacts within the Y-K Delta, some of which are quantifiable and others that are not immediately so. Quantifiable impacts highlighted in the tables below include new home construction, overall jobs created and energy savings within the region. While other benefits like improved public health due to safer, more airtight homes will certainly have an economic impact, they are difficult to directly quantify.

Table 17: Jobs in Home Construction

Year	Homes Built	New Jobs Created at Truss Plant	New Jobs Created at Sawmill	New Jobs Created in Timber Harvesting**	Jobs in Home Construction***
1	12	6	3	1	12
2	24	0	0	1	23
3	39	0	0	1	39
4	67	2	0	2	67
5	67	0	0	0	67
6	69	0	0	0	69
7	70	0	0	0	70
8	71	0	0	0	71
9	72	0	0	1	72
10	71	0	0	0	71
Total	562	8	3	6	71****

*Based on seasonal jobs @ a max of 640 hours per season for non-managerial jobs.

**Based on seasonal jobs @ 640 hours per season. Based on seasonal timber harvest assuming an average tree diameter of 12", height of 65', and harvesting rate of three trees per hour.

***Based on personal communication with CCHRC. Each home construction is estimated to include \$80,000 in payroll. At an average rate of \$25/hr, plus additional benefits, this is equivalent to one full time position per home constructed. In actuality, this will likely be multiple part-time positions, however.

****71 is used since this is the number of full time positions created as a result of the project. Many of these employees will have full-time employment for multiple years, however, as a result of the project.

Table 18: Energy Savings Based on New Home Construction

Year	Energy Savings in New Homes per Year*	Cumulative Energy Savings in All Home Construction since Inception
1	\$44,436	\$44,436
2	\$88,872	\$177,744
3	\$144,417	\$455,469
4	\$248,101	\$981,295
5	\$248,101	\$1,755,222
6	\$255,507	\$2,784,656
7	\$259,210	\$4,073,300
8	\$262,913	\$5,624,857
9	\$266,616	\$7,443,030
10	\$262,913	\$9,524,116

*Based on CCHRC Quinhagak study, which showed CCHRC homes used 529 fewer gallons of fuel per year than existing homes in the region

XVIII. Legal/Regulatory Analysis

A. Lumber Grading and Mill Certification

Alaska law does not require lumber and manufactured wood products used in residential construction to be certified or graded, but in most cases, it is still necessary. Ungraded wood products can be used in any area of Alaska where there are no local building codes, which is a substantial part of the state.⁷⁵ However, lenders and other funders usually require that construction and materials meet standards established in the International Residential Code (IRC), which does require truss certification and graded lumber.⁷⁶ Additionally, manufacturers or mills that are not certified assume full liability for any defects or product failures, which can be extremely costly, whereas the certifying agency assumes some degree of responsibility in the event of an issue or failure when lumber is graded. The AVCP enterprise will require two certifications – one for the lumber, and a separate inspection and certification for the truss plant and trusses.

B. Lumber Grading

The U.S. Department of Commerce and the National Institute of Standards and Technology (NIST), in cooperation with industry, establish product standards for American softwood lumber and a grading system to denote a variety of characteristics of the wood and products made from it. A number of regional, non-profit associations provide training and certification services to verify that a given mill's products meet these standards. In the Western U.S., there are three such associations – the Western Wood Products Association (WWPA), the West Coast Lumber Inspection Bureau (WCLIB) and the Pacific Lumber Inspection Bureau (PLIB). At this time, none of these associations have inspectors located in Alaska.⁷⁷

The WWPA has a history in Alaska⁷⁸ and was responsible for machine strength-testing Alaska white spruce, yellow cedar and hemlock as species distinct from West Coast varieties so they could be stamped and certified. Due to its specialized knowledge of Alaska wood varieties, it is a desirable choice for providing lumber grading services to an Alaska mill, but any organization certified by the American Lumber Standards Agency could theoretically do the work.

Stamps are issued by agencies like the WWPA. To receive the right to grade stamp its lumber, a mill must employ certified inspectors to monitor its production on a constant basis to ensure its lumber is meeting the specifications of the applicable grade. In addition, the mill must pay for an inspector from the WWPA (or similar entity) to visit its production facility monthly to ensure its products are in compliance with the grade – essentially, to check the work of the mill-hired inspectors. Inspectors check

⁷⁵ There is no State of Alaska building code. The following municipalities have building codes: Anchorage, Fairbanks, Juneau, Kenai, Ketchikan, Kodiak city and borough, Nome, North Pole, Palmer, Petersburg, Seward, Sitka, Soldotna and Valdez. <http://www.alaska.gov/pros/builders/approved-municipalities/>

⁷⁶ International Code Council, International Residential Code 2009, Section R802.1

⁷⁷ Conversation with Allen M.M. Brackley, Research Forester, Tongass National Forest, U.S. Forest Service, March 3, 2015

⁷⁸ The WWPA used to have an inspector based in Alaska through a partnership with the now-defunct Alaska Science and Technology Foundation and the Industry Network Corporation, but that program was discontinued. Alaska Business Monthly, April 1998.

moisture content, defects and other wood qualities against the standards established for the grade⁷⁹. The monthly inspection fee charged by WWPA is \$690, but the total cost to the mill would also include travel for an inspector from Portland, OR to Bethel. The \$690 quote is based on a three-day trip (two travel days and one work day); if weather or other issues lengthened the trip, WWPA charges \$500 per day for each additional day. With visits presumed in May, June, July and August, an annual cost of between \$8,000 and \$10,000 is projected.⁸⁰

C. Truss Plant Certification

Through a separate but similar process, AVCP's truss plant would need certification as well. In this case, the relevant inspecting entity is the West Coast Lumber Inspection Bureau, or WCLIB. WCLIB is accredited by the International Accreditation Service as an approved third-party quality assurance agency for metal-plate connected wood trusses. Certification of the plant and its products involves an initial inspection, before the plant is in operation, as well as quarterly re-inspections to ensure the products continue to meet standards. Assuming seasonal operations only, the plant would need an initial inspection, after which its operations could be re-inspected annually. Each visit is estimated by WCLIB to cost approximately \$1,750.⁸¹

If the lumber is planed in Bethel, the WCLIB would be the best choice for both lumber grading and truss-plant inspections because it is qualified to perform both services and could perform both functions in one trip, reducing travel expenses. The WWPA is only certified to grade lumber, although sources with the association said it may be able to do truss plant inspections in the near future.

D. Lumber Type Specifics

Trusses are made from what is known as Machine Stress-Rated (MSR) lumber. MSR is dimensional lumber that has been evaluated by mechanical stress-rating equipment, which measures its stiffness and sorts it into various classes based on modulus of elasticity (E). Grade stamps on MSR lumber typically include the E value as well as a stiffness rating (Fb), with higher Fb numbers indicating stronger lumber. Stamps may also include information relative to stress parallel-to-grain, specific gravity, horizontal shear and compression perpendicular-to-grain. These values are determined by nondestructively evaluating each piece of lumber to determine its E rating, after which it must also meet certain visual requirements and daily quality control test procedures⁸². MSR lumber that is produced in accordance with the procedures specified by an approved grading agency is accepted by regulatory agencies and all major building codes.

The following areas of responsibility for ensuring MSR lumber meets all appropriate measures are shared by producers and grading agencies as follows:

⁷⁹ Conversation with Allen M.M. Brackley, Research Forester, Tongass National Forest, U.S. Forest Service, March 3, 2015

⁸⁰ Conversation and correspondence with Michael McGuigan, Western Wood Products Association, March 6, 2015

⁸¹ Correspondence with Don Devisser, executive vice president, West Coast Lumber Inspection Bureau, March 5, 2015

⁸² Western Wood Product Association, <http://www.wwpa.org/>

Table 19: Areas of Responsibility for Producers and Grading Agencies.

Grading Agencies	Producers
Certification of machines	Adherence to grading-agency procedures
Calibration of test equipment	Strength-level checks every shift
Plant use regulations	Constant visual quality checks
Quality inspections	E-level checks every shift
Product appearance considerations	Maintenance of detailed test records
	Specific gravity and/or tension-level checks every shift

In order to achieve requisite Fb and E values for MSR lumber, lumber must be dried to 19 percent equilibrium moisture content or lower. In Bethel, it is likely that wood could be seasoned to reach this level by letting it sit in a covered, outdoor area for approximately one year. Alternatively, a dry kiln can be used to dry lumber down to a 19 percent equilibrium moisture level in approximately a week.⁸³ One potentially cost-effective option for incorporating a kiln would be to utilize a biomass-powered kiln that is fueled by timber waste.

Additional regulations governing the storage of lumber are set forth by the Occupational Safety and Health Administration. The following sections of OSHA code section 1926.250(b)(8)(ii) are applicable⁸⁴:

- 1926.250(b)(8)(ii)
- Lumber shall be stacked on level and solidly supported sills.
- 1926.250(b)(8)(iii)
- Lumber shall be so stacked as to be stable and self-supporting.
- 1926.250(b)(8)(iv)
- Lumber piles shall not exceed 20 feet in height provided that lumber to be handled manually shall not be stacked more than 16 feet high.
- 1926.250(b)(9)
- Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent spreading or tilting.
- 1926.250(c)
- "Housekeeping." Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary.

Additional, more general OSHA regulations related to materials handling and storage also apply. Full consultation of all relevant OSHA standards is necessary before operations begin and as the workspace is being designed.

E. Local Building Permits

The first step in receiving local approval to build in Bethel is to meet with the city's Planning Department. Based on a rough description of the size and type of business AVCP is considering, a representative of the department classified it as "major" commercial construction (the city categorizes commercial projects as either "minor" or "major"). For major construction, the city requires two

⁸³ Conversation with Allen M.M. Brackley, Research Forester, Tongass National Forest, U.S. Forest Service, March 3, 2015

⁸⁴ OSHA, https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10685

permits: one for fill and pilings, and the other for construction. Information relevant to both is required in the city's Commercial Site Plan Application form. A \$100 fee applies to the fill and pilings application, and the construction permit costs \$600.⁸⁵

Title 18 of Bethel Municipal Code requires the review of a site plan prior to the erection of any improvement on real property within city limits. An application for site-plan review must be filed with the city's Planning Department, the Alaska State Fire Marshall and the Army Corps of Engineers. Once the reviews are complete and the plan is approved, the city will issue a building permit, which must be displayed on the property.⁸⁶ The permit application requires basic information about the property owner and developer as well as the legal description of the property.

F. Insurance Requirements

An insurance quote for the truss plant was obtained from the WoodPro division of Bowermaster and Associates, a California insurance firm with specialization in wood products. Bowermaster is a member of the Wood Products Manufacturer's Association and is also an Expert Partner in the Wood Truss Council of America. The quote was verified by Mojave West Insurance Agency, which is based in Arizona but has an office in Haines, Alaska. The recommended coverage includes:

- General liability – Coverage is estimated to cost between \$4-\$6 per \$1,000 in sales. This covers product defects or failures.
- Property – This will cover the truss plant facility. Rates vary greatly depending on size and type of facility AVCP ultimately builds.
- Worker's compensation – Rates specific to truss manufacturing typically fall between \$8-\$15 per \$100 in payroll.

G. Other Relevant Permits/Licenses

All Alaska businesses must operate under a business license issued by the state. Applications can be completed and filed online. The North American Industry Classification System (NAICS) provides business-type codes for thousands of businesses and industries, the data from which is used by the state and federal government for statistical and tax purposes. The relevant NAICS code for a truss plant would be 321214, Truss Manufacturing, laminated or fabricated wood roof and floor trusses. Costs for an Alaska business license vary depending on the type of business.

A basic business license in Alaska costs \$50 per year and can be filed online.⁸⁷ If AVCP intends to establish a corporation, additional fees and paperwork are required.

⁸⁵ City of Bethel, Construction Fees and Procedures (PDF)

⁸⁶ City of Bethel, Commercial Site Plan Permit Application

⁸⁷ <http://commerce.state.ak.us/dnn/cbpl/BusinessLicensing/NewsOnline.aspx>

XIX. Facility Design Considerations

A. Lumber Drying/Yard Maintenance

At the heart of a successful lumber manufacturing business is quality control. In the case of truss manufacturing, where differences in lumber quality can alter a housing structure's usable life, maintaining close quality control of raw materials is essential. Thankfully, many resources exist that cover in detail the requirements for properly drying and storing lumber. The Iowa State University Cooperative Extension Service published an extensive and useful report with a considerable amount of detail beyond what is included here that should be referenced when designing the lumberyard. It is included on the references page at the end of this document. Much of the information that follows is drawn from that report.⁸⁸

One key question to consider is where specifically the lumber yard will be located. The existing sawmill in Chuathbaluk has air dry and dry storage capabilities,⁸⁹ making it a logical choice for a lumberyard. One key disadvantage to maintaining a lumberyard in Chuathbaluk is the additional cost for lumber grading. Chuathbaluk's difficult logistics would require certification trips to take longer, adding additional cost. One way to get around this issue would be to maintain a lumber yard in Bethel. This would allow lumber grading and truss plant certification to both take place on the same trip, reducing costs. This was actually an idea suggested by the grading agencies contacted throughout this study. One drawback to a lumberyard in Bethel, however, would be the additional cost of shipping "green" lumber to the community, due to the increased weight of undried lumber. Despite this drawback, however, it would likely make sense to maintain the lumberyard in Bethel, although lumber would likely need to be stored in Chuathbaluk for short periods of time between deliveries. Chuathbaluk would also need to store raw materials for use in sawmill operations.

Why Is Lumber Drying Necessary?

In order to be used in most construction products, wood needs to be dried prior to use. From a practical standpoint, dried lumber confers many advantages over freshly sawn, undried "green" lumber. These advantages extend beyond the producer/manufacturer to the consumer as well. One of the main advantages of drying lumber is that it reduces the moisture content, and therefore the weight, of lumber, which can reduce the shipping and handling costs of product transport. Drying the wood will also restrict the level to which it shrinks and swells, allowing for more durable construction. Properly dried lumber can also be cut to precise dimensions and machined more easily and efficiently. These precise cuts allow for wood parts to be more securely fitted and fastened together with nails, screws, bolts and adhesives.

The strength properties of wood increase as it dries, as do its electrical and thermal insulating properties. Common drying defects such as warping (curving of the board), splitting and checking (cracking) will largely be eliminated through a proper drying process, allowing for reduced inventory waste. Wood must also be dry before it can be glued or treated with fire retardant and decay-preventing chemicals.

⁸⁸ Iowa State University Cooperative Extension Service, "Air Drying of Lumber", http://www.extension.iastate.edu/forestry/publications/pdf_files/fpl-gtr-117.pdf

⁸⁹ AVCP Kickoff Meeting, January 2015

What is the Goal When Drying Lumber?

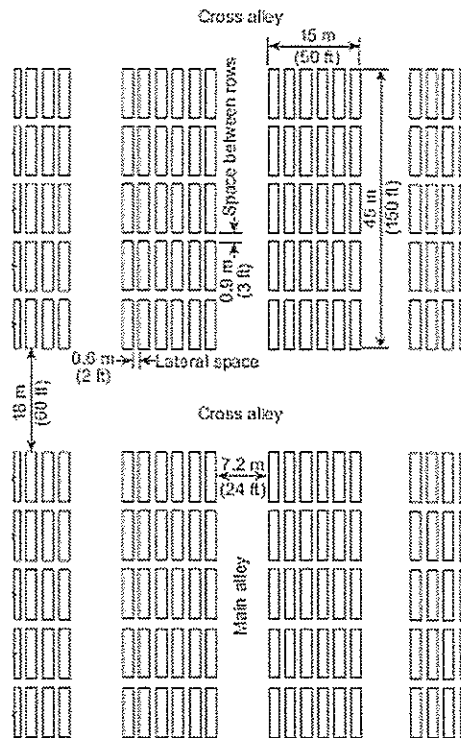
When drying lumber, the goal is to control the drying process as much as is practical, and to dry as quickly as the species will allow without damaging the wood product. Slow drying can be uneconomical and increase the risk of staining, fungal accumulation, and other lumber defects. Especially in colder, northern climates like those found in Bethel, air drying times can be considerable, which leads to significant inventory storage values that may impact AVCP's working capital involved in the project.

For truss manufacturing, softwood lumber (such as spruce) should be dried to a target moisture content of between 15 and 19 percent.⁹⁰ The typical starting moisture content for a species like white spruce is approximately 55 percent, meaning that the lumber needs to be dried considerably before being used in construction. Air drying is a common method for lumber drying, although kiln drying is also popular. While a species like white spruce would normally air dry in as little as 30-60 days in most climates, the cold, damp location of Bethel could result in drying times closer to a year. In many cases, producers will air dry lumber initially to reduce the moisture content before putting it into a kiln for final drying and processing. This helps to reduce the energy use associated with a kiln. Air drying also helps to reduce the necessary kiln capacity, allowing for a smaller, less expensive kiln.

Air Drying Lumber Yard – Best Practices

There are a number of best practices available in operation of a lumberyard that can speed the air drying process, which will be essential due to the lengthy drying times found in a region like Bethel. At the heart of air drying, the yard should be set up in such a way that will allow for good drainage of rain and melting snow, free movement of air in and out of the yard, and easy transportation and piling of lumber. The yard should, when practical, be oriented in such a way as to reduce obstructions to prevailing winds in the area. Ideally, air drying facilities should not be located near standing water or streams because this can slow the drying process due to excess moisture in the air. Unfortunately, in Bethel, the location may need to be near the river despite this fact.

Overall, the lumberyard should be laid out in a rectangular shape, with a series of alleys between different stacks of lumber. The yard should be outlined like a grid, with each alleyway forming a right angle at alley



⁹⁰http://www.conradlumberco.com/pdfs/ch12_Drying_Control_of_Moisture.pdf

intersections. The alleyways serve a dual purpose: they serve as a transport route for workers moving through the yard, and they also serve as an airflow pathway through the yard. Alleyways also provide protection in the event of a fire in the lumberyard.

As much as possible, the yard should be oriented in a north-south direction, toward prevailing winds. The north-south orientation helps in areas with heavy rain and snowfall, since this orientation style will allow alleyways to receive greater sunlight, melting and drying the lumberyard more quickly. When oriented toward the prevailing winds, lumberyards increase the total airflow through the facility, allowing for better air circulation and faster drying times. Lumber piles should be placed a minimum of three feet apart, with main alleyways being 24-30 feet wide. Piles should be anywhere from four to 15 feet high, although piles could go as high as 20 feet with the use of a forklift. A diagram of a sample lumberyard layout can be seen in the illustration on the previous page:

It may also be advantageous to blacktop the entire lumberyard surface. This has the advantage of speeding drying times since blacktop absorbs sunlight, and it also serves as a moisture barrier against groundwater. Blacktopping also has the benefit of creating a smoother traveling surface to retrieve and transport wood, which will reduce the odds of damaging wood products due to rough or improper handling. It may be prohibitively expensive to pave a large surface in Bethel, however. At a bare minimum, the yard surface should be leveled and topped with gravel.

Each individual woodpile will need to rest on a pile foundation, which will help to prevent the wood from suffering defects, as well as increasing the airflow through the wood. If the lumber is on pavement, only a post is necessary to support each lumber pile. Posts can be made out of wood, concrete, or masonry, and should be approximately six to eight inches in diameter. In the event that the yard is not paved, a mud sill would be necessary to prevent the pile from sinking into the ground or becoming uneven. Cross beams should be laid between pile foundations to provide a base for the lumber to be stacked. The cross beams can be made out of wood or steel. If used out of wood, however, 4"x6" pieces of lumber should be utilized.

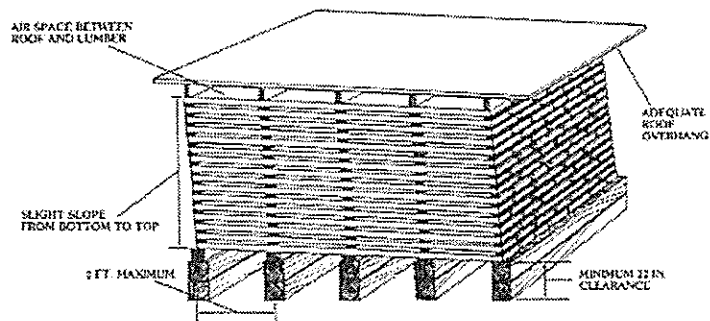


Figure 7: Diagram Showing the Essential Components of a Lumber Stack
Source: University of Iowa Cooperative Extension Service

Another essential feature of an air-drying lumberyard is covers for the woodpiles. Covers protect piles from sunlight and precipitation. Without a proper cover in place, lumber near the top of the pile will be

much more susceptible to warping and splitting. Allowing rain or snow into the pile will also slow the drying process. The roof should extend one foot out on the ends of the pile and should be sloped to allow water drainage off of the roof. The roof should not extend out on the sides of a pile, because it would get in the way of a forklift attempting to move a stack of wood. A side view of an optimal lumberyard setup can be seen below. Notice the vertical alignment between stickers, support posts and cross beams.

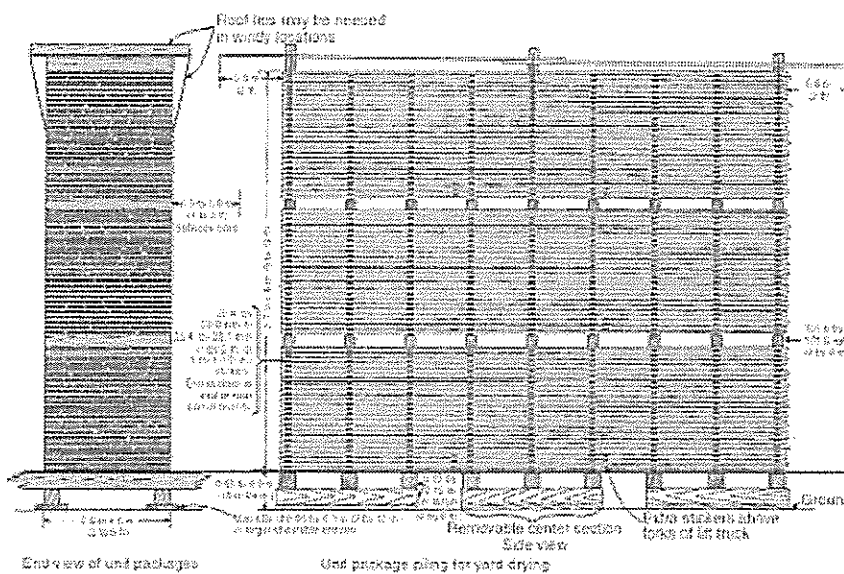


Figure 8: Covered Woodpile.

Source: University of Iowa Cooperative Extension Service.

“Stickers” should also be placed in between each layer of lumber. Stickers are small pieces of wood, often 1”x1” in size, which are used to add spacing between layers of lumber, increasing airflow. Stickers should be vertically aligned from layer to layer, and should be vertically aligned with the supporting cross beams at the base of the pile. Maintaining vertical alignment will help to decrease the likelihood of wood defects such as warping or splitting. Stickers should be placed between 18 and 24 inches apart. When not in use, stickers should be stored in a dry area to reduce the odds of them contracting fungus or getting stained.

Another option would be to shed-dry lumber. In this system, lumber is stacked normally like it would be out in the open, but a shed is erected to cover the pile. The shed would consist of a framed structure with a tarp that is open at each end to allow for greater airflow. Shed-dried lumber can help lumber dry more quickly in areas prone to slow drying or rewetting.

When the lumber is stored, the ends of the lumber should have an end coating applied to them. End coatings can be applied either as a spray coat or as a brush application and are used to reduce the end splitting in a board. They allow for better yield and keep lumber from being destroyed during the drying process.



Figure 9: Example of Lumber Stacked in a Kiln. Notice the Small Pieces of Wood (Stickers) Vertically Aligned in Between Each Piece of Lumber.

Source: Iowa State University Extension

Regardless of the particular method for lumber drying used, each lumber pile should be given a time stamp that allows for easy cataloging for when it is ready to be used.

Kiln Drying of Lumber

AVCP could accelerate the drying process by operating a dry kiln. The dry kiln allows green lumber to be dried to the proper moisture content in a matter of days or weeks. This would allow AVCP to reduce its storage/inventory costs given that it would not need to deal with the lengthy air drying process. When air drying, AVCP would likely need to have two years of lumber on hand, half of which would be drying, the other half of which would be ready for use in that year's operations.

Dry kilns often operate between 100 and 180 degrees and are designed to accelerate the drying process considerably for lumber. One of the major drawbacks of the kiln system is that is highly energy intensive. A study by the USDA found that it took, on average, 1.2 million BTUs to dry 1000 board feet of wood.⁹¹ It is likely that AVCP's operations would be able to generate a slightly more efficient system, however, due to greater volume and a higher desired moisture content. Nonetheless, it is anticipated that the total associated energy costs would be quite high. One possible way around this would be to utilize a wood-fired kiln that is powered by wood scrap from operations. This type of technology is currently being utilized by a firm in Tweed, Ontario, Canada, as well as by a firm in Delta Junction.⁹²

⁹¹ Operation and Cost of a Small Dehumidification Dry Kiln, http://www.fpl.fs.fed.us/documnts/fplrn/fpl_rn310.pdf

⁹² Biomass Case Study Series, Chisholm Lumber, <http://www.biomasscenter.org/images/stories/chisholm.pdf>

XX. Funding Sources

Funding for community and economic development projects in Alaska can come from a variety of private, local, state and federal sources. AVCP and the sawmill owners should actively begin working with a combination of funders early on in the process to determine the best funding mix for the proposed facility. Although grant funding is anticipated to be an integral piece of the development budget, AVCP and the sawmill operators should realize that grant funding is both scarce and highly competitive, decreasing the likelihood that funds will be available to support the project. Recent budget cuts at the state and federal level have further compounded this problem. Any funder contributing outside funds to the project will also expect a large local contribution in the form of project match funding.

A. AVCP Contribution

It is anticipated that most funders will require significant matching funds before they are willing to make a contribution to the project's development. In order to be successful in generating outside funding, AVCP and the sawmill owner will need to find some level of local match to support the project. Additionally, it is worth noting that AVCP and the sawmill owner may be able to provide some of this match through the contribution of in-kind resources to the project. Depending on the specific funding source, the facility itself may be used as match. While the specific amount of match required by each funding source varies, a recommended amount would be somewhere in the 25-50 percent range of the project's cost.

B. Private and Local Funding

Banks, credit unions, and savings and loan institutions are the most familiar sources of debt financing. Obtaining funding through one of these sources will add considerable cost to the project, however, and may impact the project's overall feasibility. The debt financing would require debt service payments above and beyond expenses that are already anticipated in the accompanying financial models. AVCP will have an advantage over traditional buyers, however, given its longstanding history of running businesses in the region. AVCP may also be able to qualify for a Bureau of Indian Affairs or U.S. Department of Agriculture-backed business loan, which would improve AVCP's attractiveness to private-sector lenders.

C. State Sources for Funding

State sources of funding consist of loans and grants. For AVCP and the sawmill owner's purposes, we investigated both of these sources. One source of grant funding is the State of Alaska's Community Development Block Grant program. While the program typically focuses on providing financial resources for public facilities and planning activities related to health and safety, the program also occasionally funds special economic development activities that result in the creation of jobs for low- and moderate-income individuals. It is anticipated that the AVCP/sawmill project would likely be a good candidate to qualify under this special economic development category of funding. If pursuing this grant, AVCP and the sawmill will both need to clearly communicate the projected jobs that will result from the project, and demonstrate the overall economic impact the project will have on the region. Communities are eligible to receive up to \$850,000 for their project. Despite this high maximum cap for funding, in FY

2014 the State of Alaska had approximately \$2 million in total funding available through this program. This program typically requires match funding of at least 25 percent of the total project cost. With a small budget for available grants and high need throughout the state, this is expected to be a highly competitive source. Grant applications are evaluated on several different criteria, which include the following:

- ❖ Project Description and Selection/Citizen Participation Plan (15 points)
- ❖ Project Plan/Readiness (25 points)
- ❖ Project Impact (25 points)
- ❖ Budget/Match/In-Kind (25 points)
- ❖ Administrative Capabilities (10 points)

It is important to note that when receiving state funding, any construction project must be built according to the certain specifications outlined by the funding agency. For example, all projects built with Division of Community and Regional Affairs funding must comply with all local building codes, the Uniform Building Code, the Uniform Mechanical Code, the Uniform Plumbing Code, the Americans with Disabilities Act, as well as the National Electrical Code and the energy efficiency standards outlined by the State of Alaska. This factor would not be relevant if making an equipment purchase but become a consideration if funds are used to build or repair a construction facility.

In addition to grant programs, the State also offers loan programs for Alaska businesses. The primary loan programs available to Alaska small businesses are the Rural Development Initiative Fund (RDIF) and the Small Business Economic Development (SBED) loan. The RDIF loan is open to businesses located in communities off the road system with a population of 5,000 or less. These loans have a maximum allowed amount of \$300,000 for a maximum term of 25 years.⁹³ Due to the population restrictions, AVCP would likely not qualify for this program, but the sawmill operation could. The SBED program has a maximum borrowing amount of \$300,000 at a maximum term of 20 years.⁹⁴ Both of these loan programs would need to demonstrate job creation and match funding within the region in order to qualify.

D. Federal Sources for Funding

Federal funding sources typically consist of grants and federal loan guarantee programs. All loans must be obtained from a bank or lending agency. As discussed previously, if AVCP or the sawmill wishes to pursue a loan for the project's financing, it will be important to verify that they have the ability to meet the necessary debt service coverage demands of the loan. The primary sources of federal grants for the truss manufacturing plant and sawmill include grants through the U.S. Economic Development Administration, U.S. Department of Agriculture, and the U.S. Department of Housing and Urban Development. These grants are for community development, economic and business development, and creating jobs in rural communities. All grants are highly competitive, and federal funders will likely require matching funds. Given the current state of the federal budget, matching requirements have

⁹³ AIDEA Rural Development Initiative Fund (RDIF)
<http://www.aidea.org/Programs/BusinessLoans/RuralDevelopmentInitiativeFundRDIF.aspx>

⁹⁴ AIDEA Small Business Economic Development
<http://www.aidea.org/Programs/BusinessLoans/SmallBusinessEconomicDevelopmentSBED.aspx>

increased and now tend to be at least 1:1 between federal and local match. While grant funding can be a great way to make a project more attainable, it does not completely eliminate the need for contributing local funds to the project.

Indian Community Development Block Grant

The Indian Community Development Block Grant Program is a grant program offered through the U.S. Department of Housing and Urban Development (HUD). The program is available to Indian tribes and Alaska Native villages and is designed to help meet their community and economic development needs without having to compete with cities and counties. As of FY 2014, the maximum award for Alaska recipients was \$600,000.⁹⁵ For FY 2014, the State of Alaska had a total of \$5,955,906 allocated to the region⁹⁶. Funds may be used for economic development activities, provided that the primary beneficiaries of jobs and economic activity are low-income individuals. Projects will be rated based on five separate factors, which include the following:

- ❖ Capacity of the applicant
- ❖ Need/extent of the problem
- ❖ Soundness of approach
- ❖ Leveraging resources
- ❖ Comprehensiveness and coordination

It is also worth noting that ICDBG funds may not be used for a profit-making activity. If for-profit firms are eligible for project funds, they may use them on the project, but only if they do not earn a profit on the project. Despite these issues, there may be partnership arrangements that would allow the local community to pursue this funding source.

USDA Rural Business Development Grants

The USDA's Rural Business Development Grant (RBDG) program is designed to support the expansion and development of rural businesses with fewer than 50 employees and less than \$1 million in gross revenues. Generally, RBDG grants are geared toward smaller projects, with typical amounts ranging from \$10,000 to \$500,000. Funds can be used on a number of different types of projects, including project planning, feasibility studies, technical reports or product/service improvements. Funds can also be used for development of land, construction, renovation of buildings, machinery and equipment.

Applications are evaluated using the following criteria:

- ❖ Evidence showing job creation that will occur
- ❖ Percent of non-federal match funding for the project
- ❖ Economic need of the area served
- ❖ Consistency with local economic development priorities
- ❖ Experience of the grantee with similar efforts

⁹⁵ Indian Community Development Block Grant Program,
http://portal.hud.gov/hudportal/HUD?src=/program_offices/indian_community_development/indian

⁹⁶ Indian Community Development Block Grant Program
<http://portal.hud.gov/hudportal/documents/huddoc?id=PostedNOFA2014.pdf>

Federal Loan Programs

In addition to its grant programs, USDA also offers assistance to rural businesses through its Business & Industry Loan Guarantee program. The program provides USDA backing for business loans administered by banks and credit unions and lent to businesses in rural communities. The Bureau of Indian Affairs offers similar guarantees. These loan-guarantee programs offer competitive interest rates and can serve as a reduced-cost method of borrowing for both AVCP and the sawmill.

Economic Development Administration (EDA) Grants

The U.S. Economic Development Administration (EDA) offers grant opportunities for tribal entities engaging in economic development projects through its Economic Adjustment Assistance program. The program is designed to “leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities.”⁹⁷ EDA’s strategic investments are designed to support economic development and job creation in economically distressed areas of the US.

In the past, EDA has been quite selective in distributing funds as part of its Economic Adjustment Assistance program. For instance, EDA has historically awarded funds to between only 70 and 140 projects each year nationwide. The average size of these awards has been \$820,000, although investments range from \$100,000 to \$1,250,000. In order to receive funding, applicants must clearly demonstrate the overall economic impact of their project on the region, including projections for the number of jobs created over a nine-year project time horizon.

Applications for EDA assistance must include each of the following elements:

- ❖ Description of the project region and location
- ❖ Description of regional eligibility
- ❖ Description of the project
- ❖ Documentation of how the project meets regional needs
- ❖ Documentation showing how the project aligns with EDA investment priorities
- ❖ List of strategic partners involved in the project
- ❖ Documentation supporting budget request
- ❖ Documentation of project impacts

After being submitted, EDA applications will undergo as many as three separate rounds of review, including from: EDA project officer, Investment Review Committee and the grant officer. The grant officer will have the final say over whether projects receive funding.

E. Summary

AVCP and the sawmill operation will likely face challenges when looking for project funding. However, there are many potential funding sources available to AVCP and the sawmill. It is recommended that AVCP and the sawmill first approach funders at the local level that may be more likely to commit funding before matching funds are available. From there, state and federal agencies can be approached. In all likelihood, successful fundraising will require several different sources of funds.

⁹⁷ EDA FY 2015 EDAP NOFA

Implementation Schedule

Indian Community Development Block Grant (ICDBG)

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

OMB Approval No. 2577-0191
(exp. 4/30/2018)

See Instructions and Public Reporting Statement on back.
Submit a separate implementation schedule for each project category.

1. Name of Applicant (as shown in Item 5, Standard Form 424)	2. Application/Grant Number (to be assigned by HUD)	3. <input checked="" type="checkbox"/> Original (First submission to HUD) <input type="checkbox"/> Pre-Award Submission <input type="checkbox"/> Amendment (submitted after grant approval)	Date (mm/dd/yyyy)
Native Village of Napaimute			06/10/2016
4. Name of Project (as shown on form HUD-4123, Item 4) From trusses to Timber	5. Effective Date (mm/dd/yyyy)	Expected Completion Date (mm/dd/yyyy)	Expected Closeout Date (mm/dd/yyyy)
	10/01/2016	03/31/2018	06/30/2018
6. Environmental Review Status			
<input checked="" type="checkbox"/> Exempt (As described in 24 CFR 58.34) <input type="checkbox"/> Under Review (Review underway; findings not yet made) <input type="checkbox"/> Finding of No Significant Impact (Finding made that request for release of funds for project is not an action which may significantly affect the environment.) <input type="checkbox"/> EIS Required (Finding that project may significantly affect environment or EIS automatically required by 24 CFR 58.37) <input type="checkbox"/> Not Started (Review not yet begun) <input type="checkbox"/> Categorically Excluded (as described in 24 CFR 58.35) <input type="checkbox"/> Certification (Environmental review completed; certification and request for release of funds being prepared for submission.)			
7. Tribal Fiscal Year (mm/dd/yyyy)			01/01/2016

8. Task List
(List tasks such as environmental assessment, acquisition, etc.)
Use Calendar Year (CY) quarters. Fill-in the CY below. See detailed instructions on back.

	CY					CY					CY					CY					Date (mm/dd/yyyy) (If exceeds 8th Qtr)
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	5th Qtr.	6th Qtr.	7th Qtr.	8th Qtr.	9th Qtr.	10th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	5th Qtr.	6th Qtr.	7th Qtr.	8th Qtr.	9th Qtr.	10th Qtr.	
Purchase and procure sawmill, grant paperwork	X																				
Hiring of Personnel	X																				
Disassemble sawmill and buildings	X	X	X	X	X	X	X	X	X	X											
gravel pad, assemble sawmill and buildings	X	X	X	X	X	X	X	X	X	X											
Harvesting, milling, curing first season of truss																					
Inspection and transport of lumber																					
grant closeout																					
10. Planned Drawdowns by Quarter (Enter amounts non-cumulatively)	\$ 210,000.00	\$ 90,000.00	\$ 65,000.00	\$ 75,000.00	\$ 50,000.00	\$ 70,000.00	\$ 40,000.00	\$	\$	\$	\$ 210,000.00	\$ 90,000.00	\$ 65,000.00	\$ 75,000.00	\$ 50,000.00	\$ 70,000.00	\$ 40,000.00	\$	\$	\$	\$ Total \$300,000.00
11. Cumulative Drawdown (If more than one page, enter total on last page only)	\$ 210,000.00	\$ 300,000.00	\$ 365,000.00	\$ 440,000.00	\$ 490,000.00	\$ 560,000.00	\$	\$	\$	\$	\$ 210,000.00	\$ 300,000.00	\$ 365,000.00	\$ 440,000.00	\$ 490,000.00	\$ 560,000.00	\$	\$	\$	\$	\$ Total \$300,000.00

Indian Community Development Block Grant (ICDBG)

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

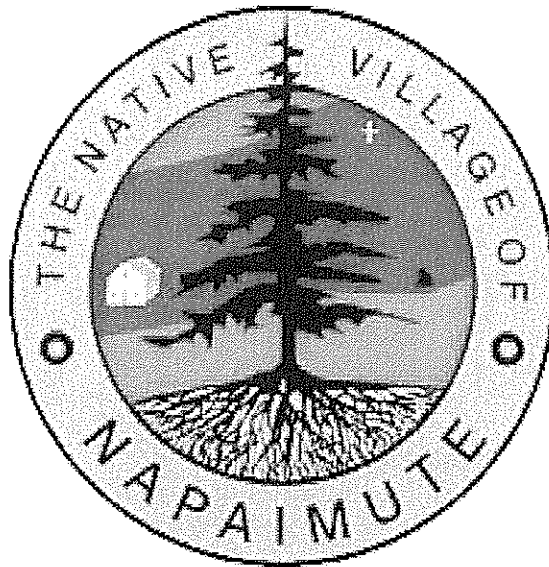
OMB Approval No. 2577-0191
(exp. 4/30/2018)

See Instructions and Public Reporting Statement on back.

1. Name of Applicant (as shown in Item 5, Standard Form 424) Native Village of Napaimute				2. Application/Grant Number (to be assigned by HUD upon submission)		
3. Original <input checked="" type="checkbox"/> (check here if this is the first submission to HUD) Revision <input type="checkbox"/> (check here if submitted with implementation schedule as part of pre-award requirements) Amendment <input type="checkbox"/> (check here if submitted after HUD approval of grant)				Date (mm/dd/yyyy) 06/10/2016		
4. Project Name & Project Category (see instructions on reverse) a		Planned ICDBG Expenditures b	Planned Other Federal Funds Expenditures c	Planned Non-Federal Funds Expenditures d	Total Planned Expenditures e	Source of Other Funds for each Activity f
Economic Development		\$ 600,000.00	\$	\$ 210,237.00	\$ 810,237.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
					0.00	
5. Administration a. General Management and Oversight.					0.00	
b. Indirect Costs: Enter indirect costs to be charged to the program pursuant to a cost allocation plan.					0.00	
c. Audit: Enter estimated cost of Program share of A-133 audits.					0.00	
Administration Total *		\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	
6. Planning The Project description must address the proposed use of these funds.						
7. Technical Assistance Enter total amount of ICDBG funds requested for technical assistance. **						
8. Sub Total Enter totals of columns b, c, and d.		\$ 600,000.00	\$ 0.00	\$ 210,237.00		
9. Grand Total Enter sum of columns b, c, and d.					\$ 810,237.00	

* The total of items 5 and 6 cannot exceed 20% of the total ICDBG funds requested.

** No more than 10% of ICDBG funds requested may be used for technical assistance. If funds are requested under this line item, a separate project description must accompany the application to describe the technical assistance the application intends to obtain. Only technical assistance costs associated with the development of a capacity to undertake a specific funded program activity are eligible (24 CFR 1003.206).



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Financial Policy & Procedure Manual

Adopted March, 2010

By: The Napaimute Traditional Council (NTC)

For: The Native Village of Napaimute (NVN)

The Native Village of Napaimute

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NAPAIMUTE TRADITIONAL COUNCIL (NTC) STATEMENT OF POLICY:

All of the financial policies and procedures contained within this manual have been updated and include several new policies that have been approved by the Council. It is the responsibility of the Napaimute Traditional Council, herein after referred to as "NTC", management, and all employees to become familiar with these policies and adhere to them as written.

FINANCIAL MANAGEMENT TERMINOLOGY

Policy Statement

It is important that managers and employees who are involved with NVN's Business gain a familiarity with the generally accepted meanings and definitions of such terms. Managers and supervisors are expected to be knowledgeable in these areas.

Procedures

This Policy contains a glossary of financial terms, as set forth below. These Definitions include those that are specific to NVN's business and general financially related terms. They serve as the basis for a glossary which employees can understand how NVN operates and the "language" of financial management.

Terms and Definitions

Account	A record of a business transaction. This includes records of what NVN buys as well as what it sells.
Alaska Bidder	A person who: 1) holds a current Alaska business license; 2) submits a bid for goods, services or construction under the name that appears on The person's current Alaska business license; 3) has maintained a place of business for the six-month period immediately preceding the date of the bid; 4) is incorporated or qualified to do business under the laws of the State; is a sole proprietorship, and the proprietor is a resident of the State or is a partnership and all partners are residents of the State; and 5) if a joint venture, is composed entirely of ventures that qualify under (one) through (four).
Accounts Payable	The record of what NVN owes. All of the approved invoices issued by suppliers and others against commitments made by NVN , along with any approved verbal authorizations, taken together, represent the accounts payable
Accounts Receivable	The record of what is owned to Tribal Council. All of NVN's accounts of what is owed by clients taken together are considered to be the accounts receivable.
Asset	Things of value which are owned. This includes NVN's cash, accounts receivables, equipment, property, furniture, fixtures, inventory, stock, work in process, and all things of value.

BPA	Blanket Purchase Agreement A simplified method for the procurement of repetitive needs for supplies or services.
Balance Sheet	A financial statement showing what NVN owes and owns as of the date specified. The balance sheet reflects total assets and their cost on one side and liabilities and capital on the other, in equal amounts.
Budget	A method of describing plans in cost terms. Budgets are used in Determining how much NVN will spend as a result of approval, modification or rejection of decisions. The extent to which departments perform within budgets are part of the measurement as to NVN's ability to properly manage its business.
Business License	A license required under the Alaska Business License Act (AS 43.70) and, for a person engaging in a business subject to licensing provisions of regulatory nature, a license, certificate, permit, registration or similar evidence of authority issued for an occupation by competent legal authority.
Capital	The total of accumulated assets available for business operations. NVN accumulates capital in several forms, including money, property, goods, and securities.
Certification of Funds	Signature certifying the requisition for an approved objective and that funds are available to pay for the purchase of supplies, equipment or services.
Construction	The building, repair, or maintaining of real property. The process of building, altering, repairing, maintaining, improving or demolishing a structure, building or other improvement of any kind real property other than privately owned real property leased for the use of NVN's business. It includes services and professional services relating to planning and design required for the construction.
Contract	A legally binding document between two parties. NVN contracts in several ways. These include contracts, subcontracts, purchase orders and oral/verbal commitments. Levels of commitment authority are prescribed in Contract Policies and Procedures.
Controllable	Controllable expenses as determined by financial planning.

Expense	As part of NVN's financial planning; controllable expenses are part of the decision process. For example, NVN will consider what levels of services are appropriate justification for the acquisition of additional equipment.
Corporation	One of the forms of business organization. In addition to corporations, businesses are also formed as partnerships and sole proprietorships.
Credit	One of many multiple meaning words used in business operations. In the financial areas, credit includes adjustments against invoices Borrowing or lending capacity, as well as the technical use of "credit" as an accounting sheet entry. Employees should exercise care in use of such terms, due to the possibility of misunderstanding.
Debit	An accounting term used in the recording of financial transactions. A debit in a liability account makes it smaller, in an asset account, larger.
Debt	That which is owed. Debt represents legal obligations, which must be repaid.
Default	Failure to meet an obligation. The financial functions are concerned with the ability of NVN, its customers, and its suppliers as related to payment default. Operating departments are generally concerned with the possibility of failure to perform obligations of contracts and purchase orders.
Delegated Authority	Delegated authority to purchase or procurement authority. Authority vested only in individuals who are specified designated by the administrator of NVN, with purchasing or procurement authority. This authority is delegated to individuals occupying positions and not to the positions delegated this authority will include the Executive Assistant and the accountant. Each position will be authorized a dollar limitation.
FSS	Federal Supply Schedules Directed and managed by the General Services Administration (GSA). This is a process for obtaining supplies and services at prices associated with volume buying. GSA establishes contracts with commercial firms for a set price (usually a low price because of the volume procured by the Government). From these contracts the GSA issues a publication called a Federal Supply Schedule (FSS) containing all of the necessary information to place delivery (purchase) orders against.
Financing	Methods used to raise capital

Financial Statements	Financial documents describing the condition of NVN The financial functions are responsible for the issuance of all Napaimute Traditional Council financial statements.
Fixed Costs	Costs which generally do not vary between periods. Normally part of the overhead, these expenses include rent, insurance, utilities, and the like. By their nature, they are required regardless as to the amount of business volume being experienced
GSA	General Services Administration Acquires numerous common use supplies and stocks them at depots and stores throughout the United States for use by federal agencies or other eligible entities.
Gross	Total before deductions. In financial applications, we often deal with gross income and net income. The difference between the two figures depends upon the amount of additional expenses, which NVN must absorb.
Income	All payments received prior to costs and other deductions. Measurements of income actually received against operating plans is one of the indicators used by management for its decisions.
Inventory	Assets listing of goods and materials being held for ultimate sale.
Investment	A monetary or other resources commitment from which a profit is the normally expected result.
Lease	A long-term rental contract. Leasing presents NVN with an alternative to purchasing in order to fulfill its requirements.
Limited Competition	Sealed bidding process A determination made in writing that a situation exists where competitive sealed bidding or competitive sealed proposals for procurement would be impractical or contrary to the best interest of NVN.
Non-Recurring Expense	A one-time charge which occurs as part of business. Normal financial treatment is to separate non-recurring and recurring expenses, for better-cost identity
Non-Responsive	A bid or proposal that does not conform in all material respects to the solicitation.
Operating	Expenditures connected with current business activities.

Costs	Included are wages, rental, utilities, shipping and other elements involved in the performance of work.
Payable	Ready to be paid. Accounts payable indicated the status of invoices, which are currents and approved for payment.
Principles	Used in financial applications, principal refers to property or capital assets, as opposed to income. Used in a management context, it also means a key member of a business organization.
Procurement (Acquisition)	Buying, purchasing, renting, leasing or otherwise acquiring supplies or equipment for NVN. It also pertains to service or constructions, including the description of requirements, selection and solicitation of sources, preparation and award of contract and all phases of contract administration with appropriate funds.
Professional Service	Any professional, technical or consultant services which are predominately intellectual in character. They include analysis, evaluation, predicting, planning or recommendation resulting in the production of a report or the completion of task.
Purchasing or Procurement Officer	An individual who has been delegated the authority to provide supplies or services or obligated the funds of NVN. This individual is accountable for how the acquisition is handled.
Receivable	An asset, representing money due to NVN. The accounts receivable group of the accounting function is responsible for the proper issuance of invoices and the collection thereof.
Requisition	An internal document describing what supplies, equipment or services are needed and the obligating funding source. When all approvals and clearances are obtained, the requisition is sent to the purchasing department. The requisition authorizes an acquisition action to take place, by an authorized purchasing or procurement officer.
Requisitioning Authority	An individual who has been delegated authority to sign a written request for insurance of supplies or request acquisition action to be taken to carry out, by way of a contract or purchase order program objectives using authorized and available funds.
Reserve	Funds held for future or emergency use.

Responsive Bidder or Proposer	A firm or person who has submitted a bid that conforms in all materials and other respects to the solicitation.
Service	The furnishing of labor, time or effort by a contractor. Not involving the delivery of a specific and product other that reports that are merely incidental to the required performance.
Small Purchase	An acquisition of supplies, equipment, non-personal services and instruction in the amount of \$10,000 or less. Small purchases are Referenced in the Federal Acquisition Regulation (FAR), Part 13.
Sole Source Procurement	Occurs when only one source is available for required procurement.
Solicitation	An Invitation to Bid, a Request for Proposals, a Request for Quotations or Any other document issued by NVN for the purpose of soliciting bids or proposals.
Specification	A description of the physical or functional characteristics, or of the nature or a supply, service, professional service or construction project. It may include requirements for licensing, inspecting, testing and delivery.
Statistics	A collection of data expressed numerically.
VA	Veterans Administration Another control Supply Service Center with offices throughout the United States. The major items handled by the VA are medical, dental and hospital equipment and supplies, nuclear medical and X-ray equipment, subsistence, drugs and chemical.

NATIVE VILLAGE OF NAPAIMUTE

FINANCIAL MANAGEMENT POLICIES AND PROCEDURES

POLICY STATEMENT

The Financial Management Procedures of the Napaimute Traditional Council are issued to provide the details of the commitment of the Council funds to various uses. These Procedures have been developed consistent with the Council's goal of maximizing its resources and services.

In order to maintain this policy, the financial functions will perform the duties described in this manual, working with and in support of all operating departments.

FINANCIAL MANAGEMENT AUTHORITY

The duties and responsibilities authorized in the Financial Management Procedure apply to all departments in the Native Village of Napaimute. They are to remain in effect unless revised or otherwise superseded as prescribed in the applicable procedures for doing so.

These policy procedures are intended to be used both as a working guide for all personnel employed in financial functions, as well as by other department with whom they are interface.

PRIMARY DUTIES-FINANCIAL MANAGEMENT

The procedures covering Financial Management policy provide details of the specific individual functions, which are done each day by personnel carrying out assigned tasks. The primary duties involve responsibility for financial planning, accounting, acquisition of funds, cost control, financial administration, and money management.

Since the scope of Financial Management activity covers work which affects many segments of the organization, some of these procedures also discussed in the Responsibilities of Other Departments.

REVISIONS TO FINANCIAL MANAGEMENT PROCEDURES

POLICY STATEMENT

The Napaimute Traditional Council's policy is that all financial procedures be maintained in a manner as to reflect current business conditions.

PROCEDURE

The Administrator will be responsible for conducting periodic reviews to ensure that Financial Management Procedures reflect business conditions and are consistent with all Council policies.

Should it be determined that policy revisions are appropriate, proposed revisions will be submitted for review and approval through the Program Coordinator in accordance with the procedures established for that function.

NATIVE VILLAGE OF NAPAİMUTE

DELEGATION OF AUTHORITY

PURPOSE

To establish the delegations of authority of key administrative staff at the Napaimute Traditional Council.

POLICY

- 1) During the temporary absence or incapacity of key administrative staff, a delegation of authority and responsibility will occur. In general, the individual delegated temporary authority will act within existing policies and procedures of NVN.
- 2) No change in signature is necessary for routine purchasing authorization from the office of the absent official. The individual delegated temporary authority will sign his or her name, followed by the word "for".
- 3) It is the responsibility of the official who expects to be absent, whenever possible, to notify the person to whom his or her responsibilities are delegated temporary and to provide a briefing on any anticipated problems.

In addition delegated temporary authority, and the duration of the delegation:

- a. The individual delegated temporary authority, and the duration of the delegation.

THE NATIVE VILLAGE OF NAPAIMUTE

Authority of the Administrator/Finance

Policy Statement

In order to maintain effective checks and balances within the Napaimute Traditional Council, all financial management personnel, regardless as to daily job assignment in support of other departments, are subject to the overall direction of the Administrator/President.

Procedure

A. Authority

The Administrator of the Napaimute Traditional Council, reporting to the President and Council has the responsibility for the finance department. The Administrator is authorized direct control over financial operations.

B. Responsibilities

The Administrator has responsibility for carrying out the following:

Capital Expenditures	Taxes
Cash	Banking
Loans	Real Estate
Audits	Insurance and Risk Management
Accounting	Budgeting
Cost Accounting Standards	Credits and Collections

C. Other Duties

As part of overall management, the Administrator will direct personnel in:

- Hiring, reorganizing, and maintaining an effective financial organization.
- Maintaining strong relationships with organizations that fund Tribal Council programs.
- Participating in all appropriate business meetings which may have an impact upon the Tribal Council financial well-being.
- Responsible to develop State Federal and Board reports.

NATIVE VILLAGE OF NAPAİMUTE

FINANACIAL OBLIGATION AUTHORITIES

POLICY STATEMENT

To set forth the positions within the Council who have authorities to obligate financial resources.

PROCEDURES

The following listed positions within the Council organization are delegated from the President and / or the Administrator the authority to obligate financial resources as identified below:

OBLIGATING AUTHORITY

OBLIGATING DOCUMENTS

OFFICIALS WITH SIGNING AUTHORITY

Supply or Service purchases

1. Program Coordinators
2. Administrator
3. President

Small Purchases Under \$500

1. Administrator
2. President

Large Purchases Over \$500

Authorized by President

Larger Purchases Over \$5,000

Authorized by Council

Contracts

Authorized by Council

Travel Order

1. Program Directors
2. Administrator
3. President

Staff Training

1. Program Directors
2. Administrator
3. President

Personal Action

1. Program Directors
2. Administrator
3. President
4. Council

Check Signing

1. President
2. Council

AUDITING RESPONSIBILITY

Refer to the Napaimute Traditional Council Delegation of Authority.

NATIVE VILLAGE OF NAPAIMUTE

INTERNAL FINANCIAL CONTROLS – GENERAL PART 1

POLICY STATEMENT

The Administrator is assigned the lead role in directing the efforts involved to issue and administer internal control procedures, which ensure the accuracy of financial records, and protect Council assets against irregularities and fraud.

PROCEDURE

The Administrator will see to it that the control procedures clearly set out the responsibilities that personnel must follow if the system(s) are to be effective. Each program director will carefully explain these control procedures to their subordinates to ensure that there are no questions and that all employees understand their responsibilities for financial controls.

One of the key areas to be covered in these controls is resource management. Provisions shall include, wherever possible, elimination of duplication of effort. Wherever possible there shall be separation of functions involving movement, physical accountability, and records verification of all Council assets.

NATIVE VILLAGE OF NAPAİMUTE

INTERNAL FINANCIAL CONTROL REVIEW PROCEDURES, REPORTS REQUIRED IN THE ADMINISTRATION OF FUNDS- PART II

PURPOSE:

To define the responsibilities, procedures, and controls in the management and distribution of budgeted funds and personnel resources for the Council.

BACKGROUND

The Council provides a wide variety of services to its membership. Fund increases received each fiscal year often do not keep step with the inflation rate. This requires accurate budgeting and resourcefulness of those managers responsible for the overall budget process as well as individual department budgets. Sound financial management is encouraged within the framework of all Council policies.

POLICY

In order to control expenditures the following procedures and controls are to be established for obligating funds for services, supplies, travel, personnel, contracts, equipment and all other expenditures.

PROCEDURES AND CONTROLS:

1. All purchases and other related purchase procedures will be done in accordance with Napaimute Traditional Council policies.
2. All contract services are handled by the Administrator and President and include all service type contracts at Council approval. These contracts must clear internal review and adherence to federal and state acquisition regulations as appropriate.
3. Records to be maintained by Dept. of Finance.
 - a. A commitment Register by Cost Center including supporting Documentation.
 - b. Daily, weekly, and monthly financial reports as required by Napaimute Traditional Council Policy.
 - c. A monthly financial statement summary report.
 - d. A monthly cost center report.

OBLIGATING AUTHORITY

OBLIGATING DOCUMENTS

OFFICIAL WITH SIGNING AUTHORITY

Supply or service purchases	1. Program Directors 2. Administrator 3. President
Small purchases Under \$500	1. Administrator 2. President
Large purchases Over \$500	President approval
Purchases Over \$5,000	Council approval
Contracts	Administrator / President at Council approval.
Travel Order	1. Program Director 2. Administrator 3. President
Staff Training	1. Program Director 2. Administrator 3. President
Personnel Actions	1. President for those that involve money. 2. Administrator 3. Program Director
Check Signing	1. President 2. Council 3. Administrator

AUDITING RESPONSIBILITY

The Administrator to perform an internal audit annually of obligated actions and provide a report to the President and the Council as directed.

NATIVE VILLAGE OF NAPAIMUTE

INTERNAL FINANCIAL AUDITS

POLICY STATEMENT

All staff of the Napaimute Traditional Council, are charged with audit duties as part of their responsibilities are expected to conduct these audits in a timely manner which will allow management to receive meaningful information. The procedures described below are guidelines, which Financial Management Operations are to follow in their auditing in order to achieve the results, which are consistent with this policy.

PROCEDURE

Responsibility of the Administrator.

The Administrator and staff is responsible for the development of, and to conduct all financial audits for the Napaimute Traditional Council. In carrying out these duties, the Administrator must assure that audits are designed to fit the specific attributes of the operations being audited, rather than merely relying upon standard audit programs. The audit should consider:

- The relevance and validity of the criteria used by the audited project, department, or function to judge effectiveness.
- The accuracy of the data accumulated.
- The appropriateness of the methods followed by the audited project, department, or function to evaluate effectiveness.
- The reliability of the results obtained.

It is important that audits should be directed toward gaining greater understanding of the program being audited. In order to gain a general understanding of the audit and what it is supposed to accomplish, it is necessary that the financial management staff:

- Promptly review any background material received.
- Determine the system of management controls that apply.
- Find out how the operation or supervisor having responsibility for performance views the audit being conducted.
- Concentrate on understanding and appraising the Council system for measuring and elevating effectiveness as part of management control.
- Determine alternate approaches, if a systematic means for measuring and evaluating results does not exist or is not working properly.

Audit Techniques

Determining upon what is being audited within Council organization, a number of different audit approaches should be considered. They may be done individually, or in combination and include:

1. Interviews

Depending upon the nature of the audit, interviews may be limited to managers, supervisors, or conducted with the entire staff.

2. Questionnaires

The use of questionnaires is often enhanced by drawing upon the managers and supervisors of the activity being audited in their preparations, distribution, and response analysis.

3. Consultants

Whenever auditors do not have expertise in the area being audited, the use of consultants shall be considered. Consultant activities may be limited to advice and interpretation, or may extend to actual performance of audits. When used for actual auditing, the audit should always be conducted under the guidance or direction of the Director of Finance.

Types of Audit Findings

The following are typical results which can come out of internal audit activities. It is important that all staff understand the basic differences between those audits which are purely related to measurement of financial data and those which include or are intended to review the results of the efforts of specific programs.

They are:

- Disclosure of inadequate or unsatisfactory management of programs, goal, and so forth.
- Objectives not being carried out in the manner or to the extent intended by the Council.
- Improvements in organization, planning, and practices are necessary.
- Guidelines for determining results or effectiveness were insufficient.

NATIVE VILLAGE OF NAPAIMUTE

Subject: Reporting of Fiscal Data for Projects

Policy Statement

The Financial Department function is responsible for monitoring costs generated by the Napaimute Traditional Council on its orders, and providing management with forecasts of financial performance of new projects under development. All departments involved in new project activities shall cooperate in the preparation of required information.

Procedure

The Administrator will provide all (new projects) supervisors with the necessary requirements for fiscal data. As part of this submission, new projects will be informed regarding the frequency for fiscal data. As part of this submission, new projects will be informed regarding the frequency of reporting (weekly, monthly, quarterly) and the specific office and person in the to whom the report should be provided.

Each new project will identify the specific tasks involved in producing the work required by the contract or purchase order under which the goods or services are being performed and submit the report to the Finance Department.

The finance department shall analyze data received, meet, as necessary, with the project supervisor to clarify questions, and incorporate the financial analysis into the reports which the functions provide to management.

NATIVE VILLAGE OF NAPAIMUTE

Subject: Risk Management

Policy Statement

Natural and competitive business risks shall be managed to keep the Napaimute Traditional Council exposure to minimum levels. Among the methods used to accomplish this are various types of insurance. Corporate risk management is the responsibility of the entire management of the Napaimute TC as delegated by the Administrator and President.

Procedure

A. Assignment of Organizational Responsibility for Risk Management

The Administrator has delegated Program Coordinators to be responsible for the daily activities connected with risk management. The managers will lead the effort to develop protections for business risks, including, but not limited to the following:

- Fraud and thefts.
- Fire, Floods, and acts of nature.
- Legal liability.
- Bad debts..
- Patient and client malpractice.

NATIVE VILLAGE OF NAPAİMUTE

Subject: Cost Accounting System

Policy Statement

Napaimute TC utilizes a cost accounting system for both management and all other cost determination purposes. The Finance Dept is responsible for ensuring that the cost accounting systems utilized by the Financial Management policies are compatible with these purposes

Procedure

The Finance Department is responsible for furnishing all organizational department heads with financial and accounting reports which enable all departments to use such information as part of their decision-making efforts and in the operation of their units.

Whenever a department believes that the format for financial and accounting information being furnished could be improved upon, or when they require information in a manner, which is not available, a request should be made to the Finance Department describing what type of information is required. The Administrator is responsible for coordinating the request within the Financial Department to determine if the request is compatible with the Napaimute Traditional Council cost methods, and would be beneficial for operations, does not duplicate other existing information, requires revision too existing cost accounting procedures, and is cost effective.

Upon completion of the analysis, any action regarding changes or revisions to existing cost accounting systems, or development of new report techniques, must be approved by the Administrator prior too implementation.

NATIVE VILLAGE OF NAPAİMUTE

Subject: Financial Records (General)

Policy Statement

In order to make well-reasoned business decisions, the Napaimute Traditional Council requires that its financial record system is accurate, current, and complete. The Dept. of Finance is responsible for complying with this policy.

Procedure

The Administrator will design or revise the Financial Management operation's records systems so that the systems are reliable, accurate, consistent, easily understood, and lead themselves to prompt access. Among the types of records and reports which fall under the responsibility of Financial Management Operations are:

Journals	Ledgers
Balance sheet	Income Statement
Cash Flow Statement	Bank Checkbook
Insurance Register	Equipment Record
Payroll Records	Accounts Receivable Aging Schedule
Tax Records	Time Sheets
Charts of Account	

As delegated by the Administrator, finance department staff will, from time to time, review the forms used to verify that they are suitable for the Napaimute Traditional Council, based upon its current or projected future needs. These reviews shall also consider the appropriateness of the fixed distribution for the records and reports, the adequacy of the protection of confidential information and the opportunities, which may exist for reducing the amounts, frequencies, or distribution of financial data.

It is important that supervisory personnel throughout the Napaimute Traditional Council who contribute input for such data do so in a manner, which is timely and accurate, and with cooperation. While the financial function will attempt to provide a reasonable time period for the development and submittal of such data, it must be recognized that there will be occasions when it will be necessary to work under short time frames.

NATIVE VILLAGE OF NAPAİMUTE

Subject: Disbursement/Check Writing Policy

Policy Statement

The Accounting Department is responsible for the disbursement of all payments made by the Napaimute Traditional Council. With the exception of petty cash, the procedure for which is detailed in a separate policy and procedure document, all such disbursements will be made by check.

Procedure

Authorization for Payment of Invoices and Other Expenses

All payments made against invoices submitted to the Napaimute Traditional Council, require that such invoices be reviewed by either the using group or the receiving department, so that verification of receipt of goods or services covered by such invoices can be accomplished. Normally, such invoices will be submitted and identified by the purchase order number, contract number, or subcontract number which was issued by the Council, as part of its order.

As part of its payment procedure, invoices processed to the Accounting Department for payment should be accompanied by a signed receiving report, shipping papers, or other documents which verify that the goods or services covered by the invoice have been received and are considered acceptable. Approved paperwork will be processed for payment and check issued will also include voucher indicating the appropriate cost identification information.

Check Writing

The following policy outlines the check writing procedure for the Napaimute Traditional Council.

- Before writing a check to a vendor, the vendor invoice will be verified according to purchase policy.
- Before writing a payroll check to an employee or contract persons, the time sheet will be verified according to payroll policy.
- Two signatures will be required for each check written and the checks will be pre-numbered.
- Only signatures of the current Council Members will be the authorized signatures.
- Each person signing the check will verify the amount paid and the name on the check with the invoice or time sheet.
- A permanent record of each check will be kept.

- The purchase requisition, purchase order, receiving report and vendors invoice will be marked paid, dated and filed for permanent record.
- The accounts payable and payroll computer system will be updated with each payment and the check register kept as a permanent record.
- Bank reconciliation's will be done monthly.

Approval Signature / Check Writing

It is the responsibility of the procuring and the using / receiving groups to furnish the Accounting Department with the names of the persons who are authorized to sign off on invoices, which are approved for payment. Such lists may be furnished only by manager level (or higher) personnel.

Method of payment Request

The method of payment request is as follows:

- Through signature approval directly on the face of an invoice or statement.
- Through a memorandum, invoice or other bill submitted by a vendor, supply or subcontractor.
- Through submittal of an "Accounts Payable Voucher Request".
- Through submittal of an approved Employee Expense Statement.

NATIVE VILLAGE OF NAPAIMUTE

POSTAGE METERS

Policy Statement

This policy outlines the management of postage meters. The Napaimute Traditional Council shall maintain a written plan for employee use of postage meters.

Procedure

- The “Postage Meter Log” is to be kept, with a beginning balance and an ending balance of postage left in the meter.
- At the end of each month the postage meter log shall be turned in to the Finance Dept.

NATIVE VILLAGE OF NAPAIMUTE

PETTY CASH FUND

Policy Statement

The set forth Napaimute Traditional Council policy for the use of Petty Cash Fund:

Procedure

The petty Cash Fund is a cash fund used to make immediate cash payments of small amounts under \$500 for supplies and non-personal services, taxi fares, postage and etc.

Petty Cash may be used to reimburse employees for small monetary out of pocket disbursement that an employee may make for corporate business. This does not relieve the employee from obtaining proper certification of funds and authorization prior to disbursement of funds; however it is intended to reimburse the individual for expenses paid on behalf of the corporation when obtaining proper approvals is impractical.

Procedures other than incidental out of pocket expenses:

- Submit (Hand Carry) requisition with authorizing signatures and certification of funds to the Administrator or President.
- You will sign an Interim Receipt for Cash for your purchase.
- When purchase is complete you are to return any unused portion of the funds along with invoices and / or receipts at which time you will sign Vendors Receipt. The Interim will then be voided which will release you from further responsibility.

REMEMBER TO ALWAYS GET A RECEIPT.

NATIVE VILLAGE OF NAPAIMUTE

TRAVEL AND PER DIEM POLICY

Policy Statement

Official business travel by authorized employees will be at the lowest possible fare available. All such travel and expenses shall be authorized by the Administrator or President or his designee. Unauthorized travel will be at the employee's expense.

Procedure

This section sets forth the procedures to be followed to perform the functions of necessary travel.

Approval

All official travel and subsequent expenditures and reimbursements are subject to prior approval by the Administrator and President or his designee.

Local Travel

Employees using their own vehicle on approved official business shall be reimbursed for mileage at the rate established by the IRS, or to the extent of the actual documented cost or higher. Prior approval of such mileage shall be secured from the departmental coordinator or director.

Taxi cab and miscellaneous expenses over \$10 must be substantiated by a receipt in order to be reimbursed.

General Procedures

Advance approval of all travel is required, using a Travel Request form, which should be submitted through the employee's supervisor. Approvals may be granted by the department coordinator or director, the Executive Director (for out of state travel, if more than \$2500, or if travel is requested less than 15 days in advance) and via information to the Financial officer or his designee. All official approved business travel should be arranged through the Traditional Council travel coordinator. Travel will be planned and arranged in a manner that will achieve the greatest economy possible and practical under the individual circumstances of each trip.

Once travel arrangements are made, the travel coordinator will send or fax a completed Travel Authorization and business itinerary form to the traveler to inform them of travel arrangements. If travel is delayed or cancelled, it is the responsibility of the employee to contact hotel and car rental agencies immediately by informing their supervisor, as well

as the travel coordinator, regarding necessary travel adjustments. The travel form shall supply confirmation and telephone numbers for any necessary contacts with hotels or car rental agencies.

Per Diem and Out-of- Town Travel

Authorized employees will be reimbursed for actual transportation costs and travel allowance / per diem. Such reimbursement shall not exceed the rates established by the Standard Government Travel Regulations ("SGTR").

When the per diem rate is over SGTR established costs, a justification form must be completed, stating actual costs and proving supporting receipts.

As a maximum rate for travel, NTC has adopted the federal, state or federal contract rates and may not exceed the specified limits of those contracts. NTC may, at its discretion, opt to pay various hotel, car rental, and other related travel costs directly to the vendor.

The amount of per diem for out of town travel will be determined by the locations at which the traveler "overnights" and will be based upon the number of business nights away from the employees assigned work site. Per Diem for meals will not be provided at training programs for periods during which meals are provided as a part of the program.

Per diem Rates

- a. When a traveler will not incur lodging expenses (such staying with relatives), the traveler will receive a fixed rate for food and incidentals, based on applicable federal or state standards.
- b. The traveler incurring lodging expenses may be reimbursed accordingly, upon submission of receipts. Or the agency may, at its discretion, choose to pay lodging expenses directly to the lodging facility.
- c. The amount of per diem for out of town travel will be determined by the locations at which the traveler "overnights" and will be based upon the number of business nights from the employees work site. Per Diem for meals will not be provided at training programs for periods during which meals are provided as a part of the program.

Eligible and Ineligible Expenses

Eligible expenses shall include necessary airfare, ground transportation, lodging, meals, car rental gas, conference fees and registrations, as pre approved by the Director, his designee, or through Council approved program budgets. Telephone calls are allowed only in emergency situations and the person called and the reason the call must be documented on the receipt. Ineligible expenses include but not limited to, alcoholic beverages, hotel videos and games, and meal charges when per diem is provided. Personal arrangements made in conjunction with business travel will be made by the employee and at the employee's expense.

NATIVE VILLAGE OF NAPIMUTE

PROCUREMENT POLICIES

Policy Statement

To define a general policy for all procurement procedure within the Napaimute Traditional Council.

Procedure

The proceeding procurement policies and procedures are applicable to all programs administered by the Napaimute Traditional Council (NTC). NTC intends to continue these procedures and utilize a combination of corporate small purchasing procedures and established requisitioning / contracting procedures to provide supplies, equipment, and services necessary to carry out the objectives of the various programs. NTC's intent is to simplify the purchasing process while maximizing the use of contract funds. The primary change in procedures will be "Delegated Authority" to purchase supplies, equipment or service.

This authority will be vested in individuals so authorized or delegated such authority within the Napaimute Traditional Council.

NATIVE VILLAGE OF NAPAIMUTE
PROCUREMENT POLICIES – OVERVIEW

Policy Statement

To establish the Napaimute Traditional Council's authorities for the procurement of all supplies, equipment, and contracts.

Procedure

The requirements contained in this Policy and Procedure are mandatory for all Divisions, Programs and Departments of the Napaimute Traditional Council. (NTC)

All requisitioning and purchasing personnel will be familiar with these policies and procedures.

Purchasing Authority

Authority and responsibility relating to the requisitioning, procurement and control of supplies, equipment, and service rest with the Director/Administrator.

The Administrator or President may delegate this authority in writing, to appropriate personnel.

All personnel obligating NTC funds for the purpose of obtaining supplies, equipment or services must be a delegated authority. This authority must be in writing and on file with the Finance Department.

Procurement of supplies, equipment and services must comply with these Policies and Procedures.

NATIVE VILLAGE OF NAPAIMUTE

PURCHASING POLICIES

Policy Statement

To establish the Napaimute Traditional Council's policy to make necessary purchases.

Procedure

This section sets forth the procedures to be followed in the requisition and purchasing of general supplies from non-local vendors.

Non-local Purchases

This section sets forth procedures to be followed in the requisition and purchasing of general supplies from non-local vendors,

Purchase Requisitions: A Purchase Requisition is prepared by the individual / department requesting the purchase to initiate the purchasing process.

The requisition must contain the following information and approvals before being submitted to the Coordinator or Program Director.

1. Department Name
2. Suggested Vendor
3. Ship to Address
4. Item Number
5. Quantity of Item Requested
6. Description of Item Requested
7. Unit Price (Actual or estimate)
8. Total Price (Actual or estimate)
9. Signature of Originator
10. Date
11. Department / Site
12. Signature of Program Coordinator and/or Director, and Executive Director, as necessary (see Financial Obligation Authority).

Once completed, the Purchase Requisition is submitted to the Finance Department. It is then checked for complete information and proper programmatic and budgetary approval.

If the information and approval are not completed, the purchases requisition is sent back to the requesting department.

If completed of the requisition is attached to the Paid Bill File Copy of the Purchases Order. A copy is sent back to the originator for receiving.

Purchase Orders: Purchase Order is prepared from the information on the approved Purchase Requisition.

Copy One: A copy is faxed to the Vendor. This is the Official expenditure obligation.

Copy Two: Paid Bill File Copy is attached to copy of requisition and is retained in the Accounts Payable File.

Copy Three: A copy is sent to the originator for receiving.

Copy Four: A Numerical File Copy for entering computer data and is retained in a Numerical file.

Local Purchases

Purchase Requisitions: The same procedures as outlined above for non-local purchase requisitions will be used in local purchase requisitions.

Purchase Orders: The same procedures as outlined above for non-local purchase orders will be used in local purchase orders.

Purchases for Standing Orders, Contracts, Monthly Obligations

- This section outlines the procedures to be followed in purchasing from vendors with the standing purchasing orders, contracts, or monthly obligating documents.
- Service contract requests are submitted to the Executive Director.
- Weekly Obligating Documents (WOD) register is established to record the monthly obligation.
- Copies of the WOD is sent weekly to the Coordinator / Program Director by the Accounting Department.

NATIVE VILLAGE OF NAPAIMUTE
PROCUREMENT FOR COMBINED PROFESSIONAL AND OTHER SERVICES
AND / OR GOODS

Policy Statement

To define the required procedures for all Napaimute Traditional Council departments to follow in purchasing professional services.

Procedure

When procurement consists of both professional and other services and / or goods, first determine the type of procurement that would be the most appropriate.

Determine if it is reasonable to separate the professional from other services and / or goods. If so, proceed with separate procurements for each part as appropriate.

Determine that it is not feasible to separate the procurement, then decide if the procurement will be made as a professional service or not. A general rule of thumb which should be applied is;

If 75% or more of the cost of the procurement is for professional services then the procurement may be procured as professional service. If less is a professional service, then procurement should be made otherwise.

Technical Approval for Computer Equipment, Software and all Peripherals

All requests for computer equipment, software and all peripherals attached or used in any way on the computer systems of the Napaimute Traditional Council must be approved by the Program Director or designee of the President. This procurement policy includes items that are acquired or lent to the agency at no cost to the agency regardless of the source or situation. This policy refers to technical approval of the request. Financial approval is a separate process that may not proceed to ordering and encumbering without this technical approval.

NATIVE VILLAGE OF NAPAIMUTE

PROFESSIONAL SERVICE, PROCUREMENT, AND CONTRACTING

Policy Statement

To define professional services and the necessary procedures to develop contractual agreements for those services.

Procedure

Professional services are any professional, technical, or consultant services which are predominantly intellectual in character. They include analysis, evaluation, predicting, planning or recommendation and result in the production of a report or the completion of a task. A Professional Services Contract, therefore, requires specialized knowledge and training (often through long and intensive academic preparation) or in-depth experience in a particular field or discipline.

For example: The use of a designer to do layout work for a magazine is considered a professional service. The printing of the magazine is a nonprofessional service.

For example: The use of a carpenter to provide consulting services for a remodeling project is a professional service. The use of a carpenter to do the remodeling is a non-professional service.

Contracting Steps

- It is the Napaimute Traditional Council's policy that all professional services sought will be in written form. All Contracts or Agreements must state clearly the scope of services to be provided and the method of payment.
- The following steps must be followed to provide assurance that a contract is fair, that it is approved by the proper authority, that necessary procedural safeguards are followed and that funds are spent for their intended purposes:

Assess the need for a Professional Services Contract.

Request and receive authority to seek professional services.

Request for Proposals (RFP) for Professional Services.

Assessing Project Essentials: In order to allow interested parties an equal opportunity to submit proposals for contracts, project specifications must be prepared. Develop the RFP and the scope of services, of the contract from written specifications.

- Specifications should include:
 1. A definition of the problem.
 2. The expertise or knowledge required.
 3. The proposed solution (if known)
 4. An estimated work schedule.
 5. An estimate of cost.
 6. RFP Contracts must contain the following:
 - The date, time and place for delivery of proposals.
 - A specific description of the supplies, services or professional services to be provided.
 - A requirement that the successful proposer, within (5) working days following their selection, submit a list of any and all subcontractors.
 - A “subject to funding” clause if the contract to be let is not funded by a continuing appropriation and you wish it to cross fiscal years.

Evaluate proposals submitted and select contractor.

Negotiate with the selected contractor and prepare a contract.

The most important section of the contract is the specification of the services to be provided by the contractor as it insures that both parties of the agreement know precisely what is to be accomplished through the project. The statement of working should define in specific terms the services and products, which are to be provided. By describing the tasks which are to be accomplished by the contractor, the conditions under which the work is to be performed and the assistance and products to be supplied, the statement of work has a direct influence on the quality of the contractor's performance and the nature of the project's results. Inadequate or deficient statements of work can potentially lead to failure of the project, receipt of substandard service, delays in scheduled work and disputes with the contractor.

Professional liability insurance should be required when contracting with but not limited to the following:

PHYSICIANS, APPRAISERS, DENTISTS / HYGENISTS, ATTORNEYS,
ARCHITECTS, ENGINEERS, ACCOUNTANTS, INSURANCE AGENTS/ BROKERS,
PHARMACISTS, TAX CONSULTANTS, RISK MANAGEMENTS, CLAIMS (LOSS)
ADJUSTERS, INSURANCE CONSULTANTS, INVESTMENTS BROKERS,
INVESTMENT/ DIVESTITURE, CONSULTANT.

The Certificate of Insurance must be submitted with the contracts package.

The period of performance (month, day, and year) that initial contracted service is to begin and end should be indicated in the contract. Unless the contract is amended, the contractual relationship ends on the date shown here.

The total contract dollar amount must be written into body of the contract and may not be exceeded without amendment. The contract must indicate the method by which the contractor will receive payment under the contract. This refers to the conditions and / or schedule by which the contractor will be paid.

Obtain approval of negotiated contract.

Administer (monitor) the contract.

Evaluate Contractor's Performance:

A contract evaluation must be completed by the Contract Administrator when it has been determined that the services provided by a contractor were performed at a less than satisfactory level. A copy of the evaluation shall be sent to the coordinator and Directors for the procurement file.

Close out the Contract

- A professional services contract is deemed closed when the amount of the contract has been fully expended and the completion date has past or when a written request is received from a division to liquidate existing funds on a contract and the completion date has past.
- It is important that the Coordinators and the Program Directors be informed of problems that may occur with a particular contractor. If there is a problem with a contractor, a memorandum should be prepared stating the problems, who was contacted and when, etc. and sent to the coordinators and Program Directors.

NATIVE VILLAGE OF NAPAİMUTE

STANDING ORDERS / DROP SHIPMENTS/ SMALL PURCHASE ORDERS

Policy Statement

To define the Napaimute Traditional Council small purchase procedures, standing Orders and Drop Shipment Policies.

Procedure

Standing Orders and Drop Shipments are one in the same and are another form of Small Purchases Procedures.

This form of procurement is used when it's known exactly the amount of an item that will be required for a year and when the item is needed. The purchase order / standing order will state what items are being ordered and specify when and where the items are to be shipped.

Standing Orders / Drop Shipments can be placed with Open Market suppliers as well as Federal Supply Schedule Contractors and the Veterans Administration.

- Submit a requisition to the Program Directors or Coordinators providing as much information as possible on the item(s) requested and when shipment is to be delivered, i.e. weekly, monthly, bimonthly, quarterly, etc. State where and who the shipment is to go. Be sure to always provide a name (person) to ship to, this will usually assure proper shipment and receipt of items requested.
- When copies of the Order Supplies or Services are received, be sure to review the contents for accuracy. Any problems should be brought immediately to the Program Directors or Coordinators attention. Any problem during the life of Standing Orders / Drop Shipments should also be given to the Program Directors or Coordinators for corrections. Delivery tickets and / or invoices will be received depending on your shipment schedule. Follow the procedures listed below for receipt.
- When receiving the shipment, be sure to state which shipment is being received. As an example, if receiving one shipment per month for twelve months, receipt the shipments as 2 through 12 of the shipment received. On shipment twelve, which would be the last shipment under this Standing Order; receipt for "Shipment Number 12 final". Be sure to send all packing slips, delivery tickets or invoices along with the Receiving Report to the Accounting Department immediately after receipt of supplies.

NATIVE VILLAGE OF NAPAİMUTE

EMERGENCY PROCUREMENT POLICY

Policy Statement

To establish a policy to assure that all necessary supplies and request will be expeditious in emergency conditions.

Procedure

Procurement may be made under emergency conditions when there exists a threat to public health, welfare, safety or when a situation exists that makes other competitive means of procurement impractical or contrary to the public interest. "An emergency procurement need not be made through competitive sealed bidding or competitive sealed proposals but shall be made with competition that is practical under circumstances." The individual with Purchasing / Procurement authority shall make a written determination including "the factual basis for finding of emergency." The written determination must also include justification of the award of contract to a particular firm or person.

- It is the Napaimute Traditional Council's policy that if practicable, prior approval shall be obtained prior to entering into an agreement for an emergency procurement regardless of dollar amount.
- Prior approval is the responsibility of the individual with Purchasing / Procurement authority to use reasonable means to make the procurement.
- Once procurement has been made, the individual authorizing the emergency procurement shall promptly forward all procurement records to the President or Administrator for review. After it is reviewed the Administrator, the Accounting Department will retain all the original procurement documentation for the procurement file.

NATIVE VILLAGE OF NAPAIMUTE

SMALL PURCHASES

Policy Statement

To define the Napaimute Traditional Council Policy and Procedure for all small purchases within the organization. Small purchases procedures are used for procurement or less than \$5000.

Procedure

Individual purchase orders (excluding BPA's) are for one-time purchase only and are considered completed on receipt of supplies, equipment or services. No further purchases may be placed against the purchase order.

The following dollar thresholds explain how and when procurement gets and receives Competition to ensure Price Reasonableness:

- Purchases not over \$1,000.
- Purchasing or Procurement Officer determines the price to be made without securing competitive quotations if the reasonable.
- Purchases over \$1,000 and up to \$5,000. Procurement must solicit verbal quotations from at least three (3) reasonable sources to promote competition and ensure price reasonableness.
- Purchases up to \$5,000: Procurement solicits written quotations from at least three (3) or more sources.
- Purchases over \$5,000: Small Purchase Procedures cannot be used for purchases over this amount. Must be obtained by contract using the Sealed Bid (formally advertised) procedures except for:
 1. Delivery Orders placed against a GSA or VA Contract.
 2. Utility services (sole source).
 3. Purchases through a socioeconomic program for small and disadvantaged businesses (8a program).
 4. Formally Advertised means publishing the proposed procurement statewide by means of synopsis.
 5. It takes a minimum of 55 days to complete a formally advertised procurement from the date the synopsis is submitted to statewide circulation.

Technical Approval for Computer Equipment, Software and all Peripherals

All requests for computer equipment, software and all peripherals attached or used in any way on the computer systems of NTC must be approved by the Information Services Director. Information Services Coordinators may provide this approval in the absence of the Information Service Director. This procurement policy includes items that are acquired or lent to the agency at no cost to the agency regardless of the source or situation. This policy refers to technical approval of the request. Financial approval is a separate process that may not proceed to ordering and encumbering without this technical approval.

NATIVE VILLAGE OF NAPAIMUTE

PROPERTY CONTROL

Policy Statement

The Financial Management function is responsible for the accounting control of the NVN Tribal property. Such control shall not be confused with physical control, which is the responsibility of other functions involved in purchasing and warehousing. For the purpose of this policy and procedure, property includes all plant equipment, parts, furniture, and fixtures owned by the Napaimute Traditional Council.

Procedure

Responsibility for Records Accountability

Financial responsibility and asset accountability shall be maintained by the Accounting Department. The Accounting Department will accomplish these responsibilities through the use of any inventory control system which enables the NTC to verify actual physical inventories against book inventory.

As part of this system, receipts and withdrawals must be reported to the Accounting Department for posting to the inventory records. Whenever physical accounting reveals either over or under amounts in actual inventory as compared to the booked inventory, the Accounting Department will make the necessary adjustments so that the actual and recorded amounts are in balance. In addition, when unaccounted variances in booked and actual are experienced, these shall be reported to the Director of Finance for audit investigation purposes.

Coordination with Other Functions

The accounting records are also available to the Purchasing department, who should use such information as part of the determination as to whether existing property can be transferred to fill open requisitions, in lieu of purchase. All departments are responsible for reporting surplus or excess property to the Accounting manager. This will be done through reporting by individuals directly to their supervisors, who shall prepare periodic surplus reports and forward these to these to the accounting manager.

Accounting will coordinate the surplus report data with the purchasing function. In order to assist in inventory control property is not to be transferred without notifying the accounting manager.

Accounting will coordinate the surplus report data with the purchasing function.

In order to assist in inventory control property is not to be transferred without notifying the accounting manager.

Property Disposal

Identifying Property for Disposal

Property disposal decisions are made through several methods. These include:

- A date decided upon at the time the property was acquired.
- Based upon condition and other factors noted in annual inventory reports.
- When they are obsolete.
- When maintenance is no longer cost efficient.
- If the intended use is no longer valid and there is no other application.

Disposal Reporting

As described above, reports of surplus property are generated by the groups who are in control of property and are reviewed to determine if there are other uses for the surplus. The surplus which cannot be utilized will then be targeted for disposal. The accounting department will make the necessary bookkeeping entries for taxes and other purposes, and the purchasing manager will dispose of property.

TRIBAL COUNCIL

BLANKET PURCHASE AGREEMENT

Policy Statement

To govern all small purchases utilizing a Blanket Purchase Agreement.

Procedure

Send a requisition with required signatures and certification of funds to the Executive Assistant requesting that a BPA be established with a vendor source and what is planned for procuring throughout the year. There may be more than one source in which to request establishment of multiple BPA's on the same requisition of for the same supplies.

After the BPA is established and copies are received (Order for Supplies or Services), review the BPA for accuracy, read the terms and conditions. If errors are discovered please notify the Coordinators or Program Directors immediately, a modification to correct these errors will be used. If at any time a change occurs, the Coordinators or Program Directors MUST be notified of these changes. Not correcting the errors or making the necessary changes could invalidate the BPA. It is recommended that a Call Register format is utilized in placing the calls.

- Blanket Purchases Agreements do not relieve the activity of its responsibility for keeping obligations and expenditures within available funds.
- A BPA does not authorize purchases not otherwise authorized by law or regulation; for example, splitting the order to avoid the \$5000 limitation on the use of small purchases procedures. The presence of a BPA does not eliminate the need for competition.
- Individual purchase should be made only after comparing prices with other sources to the extent practicable, consistent with the size and nature of the purchase involved.
- Justification for a noncompetitive acquisition over \$1,000 must be included in purchase file.
- The BPA does not eliminate standing orders or drop shipment; whenever possible items that are consistently purchased should be setup on standing orders or drop shipments.
- The BPA is not intended as a substitute for anticipating needs. For more economical acquisition, requirements should be grouped into large quantities whenever possible.

- Prior to placing an order under BPA, the requirement should be screened for availability from stock or from an establishment source of supply.
- Documentation of purchase under BPA's shall be limited to essential information and forms, as follows:
 1. Purchase generally should be made orally.
 2. Document essential elements (dates, vendor, items or service, price, deliver date...) should be recorded on the call register.
 3. This document of individual purchase under BPAs shall also cite the accounting and/or appropriation data.
 4. When delivery is made or the services performed, the vendor's sales document, delivery document, or invoice may be used for the purpose of recording receipt and acceptance of the items or services received.

Terms and Conditions

BPAs shall be prepared and issued on a NVN Purchase Order form.
Purchase Order forms shall include:

Description of Agreement: A statement that the supplier shall furnish supplies or services, described in general terms, if and when requested by the Coordinators or Program Directors (or the authorized representative of NTC) during a specified period and within a stipulated aggregate amount, if any.

Extent of Obligation: A statement that NTC is obligated only to the extent of authorized purchase actually made under the BPA.

Pricing: A statement that the prices to NTC shall be as low or lower than those charged the supplier's most favored customer for comparable quantities under similar terms and conditions, in addition to any discounts for prompt payment.

Purchase Limitation: A statement that specifies the dollar limitation for each individual purchase under the BPA.

Notice of individuals authorized to purchase the BPA and dollar limitations by title of position or name: A statement that a list of individuals authorized to purchase under the BPA, identified either by title of position or by name of individual, organizational component, and the dollar limitation per purchase for each position title or individual shall be furnished to the supplier by the Accounting Department.

Delivery Tickets: A requirement that all shipments under the agreement except subscriptions and other charges for newspapers, magazines or other periodicals, shall be accompanied by delivery tickets or sales slips which shall contain the following minimum information:

1. Name of Supplier
2. BPA Number
3. Date of Purchase
4. Purchase Order Number
5. Itemized List of Supplies or Services Furnished

Quantity: Unit price and extension of each items, less applicable discounts (unit prices and extensions need not be shown when incompatible with the use of an automated system, provided that the invoice is itemized to show this information).

Invoices: One of the following statements (except that statement 3 below should not be used if the accumulation of the individual invoices by NTC materially increases the administrative costs of the purchase method);

1. A summary invoice shall be submitted at least monthly or upon expiration of this BPA, whichever occurs first, for all deliveries made during a billing period, identifying the delivery tickets covered therein, stating their total dollar value, and supported by receipted copies of the delivery tickets.
2. An itemized invoice shall be submitted at least monthly or upon expiration of the BPA, whichever occurs first, for all deliveries made during a billing period and for which payment has not been received. These invoices need not be supported by copies of delivery tickets.
3. When billing procedures provide for an individual invoice for each delivery, these invoices shall be accumulated, provided that:
 - A consolidated payment will be made for each specified period, and ,
 - The period of any discounts will commence on the final date of the billing period or on the date of receipt of invoices for all deliveries accepted during the billing period, whichever is later.
 - An invoice for subscriptions or other changes for newspaper, magazines or other periodicals shall show the starting and ending dates and shall state either that ordered subscriptions have been placed in effect upon receipt of payment.

NATIVE VILLAGE OF NAPAIMUTE

RECEIVING OF PURCHASES

Policy Statement

To define the procedure to perform the functions of receiving of purchases.

Procedure

- Receiving all Items: Receipt of all items will be coordinated through the designated local Coordinators Program Director or Office Personnel. Other departments receiving any items, packing slips or invoices will return them to the supply department for proper processing.
- When items are received from the vendor, the local Coordinators or office personnel will indicate the receipt on their copy of the purchase order by a check mark next to the items received with the amount of postage or the airway bill number indicated.
- After items have been indicated as having been received they are distributed to the requesting department as appropriate.
- Processing the Paperwork: When all the items on a purchase order are received, a copy of the PO, with all receiving documentation attached will be forwarded to the Accountant for payment.

NATIVE VILLAGE OF NAPAIMUTE

VENDOR INVOICE POLICY

Policy Statement

The following policy outlines procedures from purchase requisitions to payment of the vendor's invoice.

Procedure

- A two-part purchase requisition shall be prepared by the individual or department requesting the purchase of goods or service.
- The purchase requisition must be signed or initialed by delegated authority.
- The administrative support staff orders the requested item after obtaining competitive bids to assure best price, when appropriate. After verifying the amount and condition of the goods, the person receiving the goods must sign or initial, date and mail the receiving report to the accounting department.
- When the vendor invoice is received, the accounts payable clerk will compare the vendor invoice against the purchase requisition, purchase order and receiving report.
- Once the reports reconcile the accounts payable clerk will stamp "Okay to Pay" with his / her initials on the invoice and enter the encumbrance or accounts payable in the computer.
- When it is time to pay the invoice the check will be written according to the check writing policy. The cash amount and the encumbrance or accounts payable will be reduced accordingly.
- The invoice will be marked "Paid" with the date, check number and initialed.
- The purchase requisition, purchase order, receiving report and vendor's invoice and copy of the check will be filed for permanent record.

NATIVE VILLAGE OF NAPAIMUTE EQUIPMENT INVENTORY

Policy Statement

To set forth Napaimute Traditional Council policy regarding conducting periodic inventories on all corporate owned equipment.

Procedure

It is the responsibility of each department to insure that periodic equipment inventory is necessary to perform the functions of their programs and is maintained at an adequate level.

- Physical inventories of equipment will be conducted on an annual basis.
- Inventories will be taken by personnel other than those who have custody of the property.
- Inventory results will be promptly reconciled with property records.
- Equipment will be checked for proper classification and labeling.
- Inventory reports will be provided.

NATIVE VILLAGE OF NAPAIMUTE
REVIEW AND CLOSE-OUT PROCEDURES

Policy Statement

To ensure that periodic reviews on all BPA's are conducted, reconciled, and changed as necessary.

Procedure

The purchasing clerk shall review the BPA files as least semiannually to ensure that authorized procedures are being followed. The purchasing clerk will ensure that:

- The individual authorized to place calls under the BPA will submit their Call Registers to the Accounting Department on a monthly basis.
- Awareness of changes in the market condition, sources of supply and other pertinent factors that may warrant making new arrangements with different suppliers or modifying existing arrangements is important and should be monitored by all parties.
- An individual BPA is considered complete when the purchase under it equal it's total.

**NATIVE VILLAGE OF NAPAIMUTE
LOST OR STOLEN INVENTORY ITEMS**

Policy Statement

This policy outlines the Napaimute Traditional Council policy for missing or stolen items from the site inventory lists.

Procedure

Council employees will be responsible for reporting any items that become lost or stolen at their site.

- All items on site should be marked with the identification number from site inventory list.
- Employee at site should notify their supervisor as soon as possible. Also, a memo should follow stating what item has been lost or stolen and explanation.
- Police Department should be notified as soon as possible with the necessary paper work filled out.

NATIVE VILLAGE OF NAPAİMUTE

BILLING DEPARTMENT PROCEDURE

Policy Statement

It is the responsibility of the Office Manager and support staff to gather, process, and input all vendors billing financial and statistical information.

Procedure

The Tribe billing forms are kept in the Tribal business office. The accounting office, when necessary, makes photocopies from the original.

- After posting all charges, make any adjustment, if needed for each account.
- Total all encounter forms, run a calculator tape and a daily charge journal off the system.
- All encounter totals should equal the total on the daily charge journal. If the totals do not match locate the error before continuing. Do the same procedure with any payments received.
- Stamp each encounter form with the posting date. File the original in the permanent posting file at the end of each month along with the daily charge journals.
- All statements and insurance claims are processed monthly. This must be done before the 10th of the month.
- All statements and insurance claims must be reviewed for correct and complete information before mailing.

Payment Posting Procedures:

- When a payment is received, a copy of the check must be made.
- If cash is received for a payment, a money order must be made by the office manager and will be deposited with all other checks.
- All checks will be stamped with Tribal Council endorsement and a deposit slip will be made. A calculator tape will be run to verify the total on the deposit slips. Make copy of the deposit slip. Copies of the deposit slip and checks will be maintained in a permanent file.

Audit

A check of encounter forms against the daily medical logs maybe conducted randomly several times a quarter.

CERTIFICATION:

The preceding Financial Policy & Procedure Manual was adopted by the Napaimute
Traditional Council on March 16, 2010

Traditional Council President	Date	Traditional Council Secretary	Date
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Native Village of Napaimute
Bethel Office
P.O. Box 1301
Bethel, Alaska 99559

October 14, 2015

Dear Honorable Chief Delores Matter and President Devron Hellings,

We are pleased that the Native Village of Napaimute is applying for the 2015 U.S. Department of Housing and Urban Development's Public and Indian Housing Community Development Block Grant (ICDBG) Program for Indian Tribes and Alaskan Native Villages, CFDA #14.862, Economic Development Project, Funding Opportunity Number FR-5900-N-01. The Kuskokwim Corporation recognizes the strong need of economic development in the Mid-Kuskokwim Region and identifies the Native Village of Napaimute as a Tribe within our region which has the capabilities of developing an enterprise that will provide economic stability and to our area. We fully endorse the Tribe, Native Village of Napaimute's initiative in applying for this grant.

Economic Development is critical in this region as it is struggling with extremely high unemployment rates and the lowest average medium income of any area in the State of Alaska. The Native Village of Napaimute has a long history of providing jobs in the region and economic opportunities for families. This grant, and the opportunities it would allow the Native Village of Napaimute to create, are greatly needed in our region. The Native Village of Napaimute has secured matching funding for this enterprise through In-Kind leveraging, and has a demonstrated history of grant development and performance.

We highly recommend that the Department of Housing and Urban Development Office of Native American Program, give the Native Village of Napaimute's Project utmost consideration for an ICDBG Economic Development Grant to help garner the necessary funds which will promote economic and social self-sufficiency for Alaska Natives living on the Middle Kuskokwim River.

Sincerely,

Maver Carey, President/CEO
THE KUSKOKWIM CORPORATION



Samuel Callen
Associate Director – Business Development
University of Alaska Center for Economic Development
3211 Providence Drive
Bragaw 199
Anchorage, AK 99508

Subject: Napaimute Financial Analysis – Firewood Production

After an analysis of financial statements and business planning documents provided by the Napaimute Tribe, I have concluded that their economic development project (local firewood production) poses a reasonable chance of economic success. The tribe has been engaged in local firewood production for a number of years and has developed the internal capabilities necessary to grow this business to serve the Y-K Delta region. *My analysis is based on the accuracy of the numbers provided to me, however, as I did not generate them directly.* The numbers were supplied by Tribal management and a third party bookkeeper. I am relying on their accuracy for my analysis.

Despite the difficulties inherent in running a successful firewood operation, the Napaimute tribe has maintained profitable operations over 2 of its last 3 years. These figures are even more impressive considering that the previous two winters have been mild, reducing the need for firewood and increasing the difficulty of transport. These mild winters have also increased the difficulty in projecting sales figures for upcoming years. Firewood businesses often require accurate projections of future demand due to the fact that harvested firewood must be dried for a considerable length of time prior to sale. Inaccurate sales projections, or unusually mild winters, can increase the difficulty of making these projections. Even though these challenges exist, the Napaimute Tribe has done a good job of projecting sales in recent years. Part of this success has come from continuing to grow the business within the region, serving new customers each year.

After a review of financial statements from 2012-2014, I have concluded that the Napaimute Tribe has improved in their ability to accurately forecast the upcoming demand for firewood. Despite this improved forecasting, the Tribe still currently has an oversupply of firewood on hand, which has negatively impacted their working capital. In essence, the tribe's assets are tied up in inventory on hand. This working capital is needed to meet payroll requirements for the upcoming year's harvest of firewood. An infusion of working capital would aid in setting the tribe up for long-term success. In my estimation, a working capital infusion could provide the needed support to the tribe in order to continue with their operation.

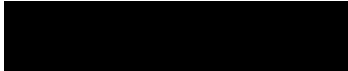
Over the previous three years, Napaimute's firewood business has generated \$268,639 in sales in 2012, \$37,163 in 2013, and \$96,900 in 2014. Over these three years, the tribe has generated net incomes of \$47,621 in 2012, a net loss of \$18,365 in 2013, and a net income of \$9,646 in 2014. Considering the mild winters of 2013 and 2014, this is a testament to the managerial capacity of the Napaimute tribe.

The Napaimute firewood operation poses a reasonable opportunity for market growth. Napaimute has considerable access to inexpensive timber for harvesting into firewood, and continues to gain market share locally. Just recently, the tribe secured a large contract with the Chefnak Village Corporation Store, further growing their customer base. Continuing to branch out into local village stores is a key growth area for Napaimute. The ability to generate bulk orders of firewood will allow the company to quickly grow sales.

In addition to this project being beneficial to Napaimute, it is also beneficial to the region. Shipping costs in Western Alaska often make up a considerable amount of the total cost of products in the region. The region is plagued with high costs, making it all the more important to manufacture products locally at an affordable price. The Napaimute firewood operation provides an opportunity to increase local manufacturing and employment, while concurrently reducing the price paid for firewood by local residents.

While my analysis hinges on the accuracy of the numbers provided to me, I believe that (based on the information provided) the project poses a reasonable chance for success.

Sincerely,

A solid black rectangular box used to redact the signature of Samuel Callen.

Samuel Callen
Associate Director
University of Alaska Center for Economic Development

Henry Hunter Sr., Chairperson
Myron P. Naneng Sr., President
Phone: (907) 543-7300
Fax: (907) 543-3369
Web: www.avcp.org

AVCP

Association of Village Council Presidents
Economic & Energy Development
Department
Pouch 219, Bethel, AK 99559



October 14, 2015

Native Village of Napaimute
Bethel Office
P.O. Box 1301
Bethel, Alaska 99559

Dear Honorable Chief Delores Matter and President Devron Hellings,

The Association of Village Council Presidents (AVCP) is a tribal consortium of 56 Alaska Native Villages and is one of the original 13 Alaska Native Claims Settlement Act (ANCSA) regions. Originally formed to facilitate the settlement of aboriginal land claims, AVCP has grown to be a regional, non-profit Alaska Native organization that advocates for self-determination and the protection and enhancement of the Yup'ik, Cup'ig and Cup'ik people of the AVCP region.

Today, AVCP provides a broad stream of social services, programs, technical assistance, training and advocacy to the 56 Alaska Native Villages / Federally-Recognized Indian Tribes scattered over a 59,000 square mile region in remote western Alaska. AVCP has compacted and worked with the Tribe of Napaimute through the decades. Despite considerable strides the Napaimute Tribe has made in economics development and governance, there continues to be a need in the Mid-Kuskokwim Region to ameliorate extremely high levels of unemployment and poverty. The 2005-2009 American Community Survey conducted by the US Census Bureau demonstrates that it is the most rural communities which face the biggest economic challenge. Poverty is pervasive for the remote Tribes located in the Kid-Kuskokwim River Region. Due to these economic conditions, and Napaimute's proven track record of grant management, we highly recommend that the 2015 U.S. Department of Housing and Urban Development give great consideration to the Native Village of Napaimute application for funds through: Public and Indian Housing Community Development Block Grant (ICDBG) Program for Indian Tribes and Alaskan Native Villages, CFDA #14.862, Economic Development Project, Funding Opportunity Number FR-5900-N-01.

The Native Village of Napaimute will be utilizing these funds for the expansion and stabilization of Napaimute Enterprises L.L.C. Napaimute's Timber Harvesting, Milling, and Distribution Project. Our region needs jobs for the people and economic stability.

If you have any questions or concerns, please contact me at (907) 543-7386.

Sincerely,

Brent Latham
Economic & Energy Development Director
Association of Village Council Presidents
Phone: 907-543-7386
Fax: 907-543-3369

Akiachak
Akiak
Alakanuk
Andreafsky
Aniak
Atnautluak
Bethel
Bill Moore's Sl.
Cheforiak
Chevak
Chuathbaluk
Chuloonawick
Crooked Creek
Fek
Enmonak
Georgetown
Goodnews Bay
Hamilton
Hooper Bay
Lower Kalskag
Upper Kalskag
Kasigluk
Kipnuk
Kongiganak
Kotlik
Kwethluk
Kwigillingok
Lime Village
Marshall
Mekoryuk
Mtn. Village
Napaimut
Napakiak
Napaskiak
Newtok
Nightmute
Nunakauyak
Nunam Iqua
Nunapitchuk
Ohogamiut
Oscarville
Paimiut
Pilot Station
Pitka's Point
Platinum
Quinhagak
Red Devil
Russian Mission
Scammon Bay
Sleetmute
St. Mary's
Stony River
Tuluksak
Tuntutuliak
Tununak
Umkumiut

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Industry Average 2010-2011
Gross Ratio Local Lumber	22.28%	36.51%	43.12%	46.85%	46.72%	46.78%	46.84%	46.89%	46.94%	46.84%	34.11%
Gross Ratio Lower 48 Lumber	55.24%	57.02%	57.82%	58.25%	58.22%	58.21%	58.19%	58.17%	58.15%	58.11%	34.11%
Gross Ratio Sawmill	63.88%	63.91%	63.94%	63.96%	63.99%	64.02%	64.05%	64.07%	64.10%	64.13%	34.11%
COGS Local Lumber_Share	90.07%	67.61%	59.14%	54.59%	54.50%	54.36%	54.23%	54.12%	54.01%	54.08%	67.20%
COGS Lower 48 Lumber_Share	90.41%	67.94%	59.47%	54.92%	54.83%	54.69%	54.57%	54.45%	54.35%	54.41%	67.20%
COGS Local Sawmill_Share	68.88%	56.27%	50.39%	47.17%	47.09%	46.98%	46.86%	46.80%	46.72%	46.78%	67.20%
Depreciation Share Local Lumber	10.82%	5.45%	3.01%	1.73%	1.66%	1.57%	1.50%	1.43%	1.36%	1.33%	1.73%
Depreciation Share Lower 48 Lumber	10.82%	5.45%	3.01%	1.73%	1.66%	1.57%	1.50%	1.43%	1.36%	1.33%	1.73%
Depreciation Share Sawmill	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.73%
Overhead Local Lumber	34.20%	18.67%	11.83%	8.18%	7.98%	7.74%	7.52%	7.32%	7.12%	7.05%	15.67%
Overhead Lower 48 Lumber	34.20%	18.67%	11.83%	8.18%	7.98%	7.74%	7.52%	7.32%	7.12%	7.05%	15.67%
Overhead Sawmill	24.60%	21.77%	20.29%	19.42%	19.17%	18.93%	18.69%	18.47%	18.25%	18.06%	15.67%
Payroll Local Lumber	55.80%	31.71%	20.77%	15.39%	15.41%	15.37%	15.33%	15.31%	15.30%	15.33%	9.96%
Payroll Lower 48 Lumber	55.80%	31.71%	20.77%	15.39%	15.41%	15.37%	15.33%	15.31%	15.30%	15.33%	9.96%
Payroll Sawmill	46.56%	29.74%	21.64%	17.04%	17.27%	17.44%	17.63%	17.84%	18.08%	18.54%	9.96%
NI before taxes Local Lumber	-72.18%	-9.28%	16.97%	30.35%	30.95%	31.68%	32.35%	32.98%	33.56%	33.69%	7.19%
NI before taxes Lower 48 Lumber	-72.51%	-9.61%	16.64%	30.02%	30.62%	31.35%	32.02%	32.64%	33.23%	33.35%	7.19%
NI before taxes Sawmill	-26.89%	1.72%	15.38%	22.91%	23.15%	23.45%	23.65%	23.82%	23.96%	23.75%	7.19%
Net Profit Margin Local Lumber	-	-	12.64%	17.92%	17.25%	17.56%	18.69%	19.02%	19.34%	19.40%	7.56%
Net Profit Margin Lower 48 Lumber	-	-	12.45%	17.75%	17.96%	18.23%	18.50%	18.83%	19.15%	19.21%	7.56%
Net Profit Margin Sawmill	-26.89%	1.44%	12.73%	17.78%	17.84%	17.79%	17.69%	17.58%	17.46%	17.26%	7.56%
Interest Coverage Ratio LL	-2.84	-0.77	2.69	8.96	10.30	12.18	14.44	17.47	21.65	26.71	15.46
Interest Coverage Ratio L48	-2.86	-0.79	2.63	8.87	10.19	12.00	14.29	17.30	21.44	26.44	15.46
Interest Coverage Ratio S	-	-	-	-	-	-	-	-	-	-	-
Sales per Employee LL	24,423	48,471	87,639	152,857	159,480	167,858	176,415	185,212	194,249	197,952	216,770
Sales per Employee L48	24,423	48,471	87,639	152,857	159,480	167,858	176,415	185,212	194,249	197,952	216,770
Sales per Employee S	51,153	101,596	183,832	320,874	335,028	352,895	371,163	389,964	409,299	417,414	216,770
Profit per Employee LL	(17,628)	(4,498)	11,080	27,389	27,512	29,482	32,965	35,232	37,559	38,403	17,273
Profit per Employee L48	(17,709)	(4,660)	10,913	27,126	28,647	30,603	32,632	34,881	37,191	38,027	17,273
Profit per Employee S	(13,755)	1,465	23,407	57,058	59,776	62,771	65,640	68,541	71,467	72,059	17,273
COGS Local Lumber	131,996	196,624	310,971	500,644	521,481	547,462	574,037	601,390	629,521	642,294	642,294
COGS Lower 48 Lumber	132,484	197,592	312,723	503,703	524,675	550,827	577,576	605,108	633,423	646,274	646,274
COGS Local Sawmill	35,233	57,165	92,627	151,369	157,778	165,793	174,010	182,488	191,230	195,274	195,274

Overhead Local Lumber	50,122	54,284	62,218	75,009	76,333	77,970	79,619	81,291	82,988	83,768
Overhead Lower 48 Lumber	50,122	54,284	62,218	75,009	76,333	77,970	79,619	81,291	82,988	83,768
Overhead Sawmill	12,582	22,113	37,306	62,309	64,233	66,794	69,379	72,011	74,689	75,371
Payroll Local Lumber	81,773	92,233	109,241	141,118	147,462	154,753	162,310	170,169	178,342	184,396
Payroll Lower 48 Lumber	81,773	92,233	109,241	141,118	147,462	154,753	162,310	170,169	178,342	184,396
Payroll Sawmill	23,817	30,219	39,778	54,682	57,868	61,556	65,443	69,552	73,900	77,397
NI before taxes Local Lumber	(105,766)	(26,990)	89,259	278,343	296,168	319,079	342,459	366,486	391,154	400,099
NI before taxes Lower 48 Lumber	(106,254)	(27,958)	87,507	275,284	292,974	315,715	338,921	362,768	387,252	396,120
NI before taxes Sawmill	(13,755)	1,744	28,179	73,520	77,545	82,756	87,790	92,899	98,069	99,115
NI after taxes Local Lumber	(105,766)	(26,990)	66,478	164,335	165,073	176,895	197,792	211,391	225,353	230,416
NI after taxes Lower 48 Lumber	(106,254)	(27,958)	65,479	162,756	171,884	183,619	195,789	209,287	223,145	228,164
NI after taxes Sawmill	(13,755)	1,465	23,407	57,058	59,776	62,771	65,640	68,541	71,467	72,059

Local Lumber			39
	Year 3	Per Unit	
Gross Revenue	\$25,837	13,317	
Variable Cost:			
Lumber	\$162,463	4,115	
Plates	\$51,728	1,310	
Carpenter	\$16,612	421	
Crew	\$39,870	1,010	
Benefits+Payroll Taxes	\$31,212	790	
Total VC	\$301,885	7,645	
Contribution Margin	223,952	5,671.78	
Fixed Cost			
Utilities and Trash Disposal	\$5,657	-	
Service and Repair	\$12,000	-	
Software	\$320	-	
Other	\$5,305	-	
Packaging	\$530	-	
Professional Fees/Permit Costs/Certification	\$1,853	-	
Office Equipment and Supplies	\$2,103	-	
Payroll	\$1,695	-	
Depreciation	\$15,853		
Interest	\$33,223		
Management	\$21,547		
Insurance	\$34,607		
Total FC	\$134,693	-	
NI before taxes	89,259	-	
Break even point_local lumber	24	houses	

Lower 48 Lumber			39
	Year 3	Per Unit	
Gross Revenue	\$525,837	13,317	
Variable Cost:			
Lumber	\$164,215	4,159	
Plates	\$51,728	1,310	
Carpenter	\$16,612	421	
Crew	\$39,870	1,010	
Benefits+Payroll Taxes	\$31,212	790	
Total VC	\$303,637	7,690	
Contribution Margin	222,200	5,627.40	
Fixed Cost			
Utilities and Trash Disposal	\$5,657	-	
Service and Repair	\$12,000	-	
Software	\$320	-	
Other	\$5,305	-	
Packaging	\$530	-	
Professional Fees/Permit Costs/Certifi	\$1,853	-	
Office Equipment and Supplies	\$2,103	-	
Payroll	\$1,695	-	
Depreciation	\$15,853		
Interest	\$33,223		
Management	\$21,547		
Insurance Fixed	\$34,607		
Total FC	\$134,693	-	
NI before taxes	87,507	-	
Break even point_Lower 48 Lumber	24	houses	

Integrated Truss Plant Input Assumptions

	Demand Covered by Truss Plant	Total Houses Built in Region (from Existing Sources)	Population Bethel Census Projection	Population Wade Hampton Census	Total Region Population Projection	New Demand	Other Demand	AVCP Built Houses Projection
2017	12	65	18,404	8,170	26,574	1	10	55
2018	23	64	18,572	8,274	26,846	5	10	54
2019	39	63	18,742	8,379	27,121	8	10	53
2020	67	62	18,914	8,485	27,399	10	10	52
2021	67	60	19,087	8,592	27,679	12	10	51
2022	69	59	19,246	8,688	27,934	14	9	50
2023	70	58	19,417	8,791	28,209	16	9	49
2024	71	58	19,590	8,896	28,486	18	9	48
2025	72	57	19,765	9,001	28,766	20	9	48
2026	71	55	19,941	9,108	29,049	20	9	47

Financing Assumptions

Local Lumber Price without Delivery Year 1	19.80
Lower 48 Lumber Price without Delivery Year 1	11.95

Revenue Assumptions: 1,092 sf house

Number of Integrated Field Trusses per House	19
Number of Integrated Gable Trusses per House	4
Integrated Gable Truss Price per Unit, \$	840
Integrated Field Truss Price per Unit, \$	480

Personnel Assumptions

Carpenter Salary per hour, \$	25
Crew Salary per hour per person, \$	15
Benefits, %	40%
Manager Base Salary per Year, \$	70,000
Number of integrated trusses produced per hour	3
Number of crew members*carp	5

Production and Processing Assumptions

Pieces of lumber 2 x 6 20 ft per one house	189
Price per 100 sq in of plates, \$	2.5

Lumber Transportation Assumption

Tractor rent per day, \$	188
Gasoline Price per gallon, \$	7
Tractor Driver's Salary, \$	17

Services Assumptions

Electricity price Bethel, \$ per kw hour	0.57
Consumption, kw/hours per month	1500
Garbage Disposal, \$ per truck	200
Flat Rate Water, \$ per month	\$166.00
Flat Rate Sewer, \$ per month	\$47.00
Software cost per month, \$	300

Sawmill Input Assumptions

Sales Price for pc lumber without delivery, \$	19.8
Sales Price for grade 3 and lower lumber, \$	13.0

Financing Assumptions

Share of capital cost financing from grant	100%
Share of capital cost financing from loan	0%
Interest rate Operating loan	5%
Term of operating loan, years	5
Interest rate facility and equipment loan	6%
Term of facility and equipment loan, years	15

Personnel Assumptions

Sawmill Operator Salary per hour, \$	22
Support Employee Salary per hour, \$	18
Benefits, %	40%
Manager Base Salary per Year, \$	70,000

Production Assumptions

Processing timber per day, bf	5,000
Processing timber per hour, bf	625
Recovery Rate, %	0.8
Timber price per mbf, \$	333
Over-Run	0%

Services Assumptions

Electricity price, \$ per kw hour	0.61
Consumption, kw hours per month	4800
Consumption, kw hours per day	30
Garbage Disposal, \$ per truck	200
Gazoline Consumption per hour Sawmill	1.2

Timber Delivery Assumptions

Tractor: rent per day, \$	188
Gazoline Prise per gallon, \$	7
Tractor: Driver's Salary, \$	17

YEAR

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

Loan Amount	\$170,000
Term (Number of years)	10
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	6.00%
Annual Payment Amount	\$23,098

[illegible]

FACILITY & EQUIPMENT LOANS

Loan Amount	\$450,125
Term (Number of years)	15
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	6.00%
Annual Payment Amount	\$46,346

[illegible]

REVENUE	Federal Income tax									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gable Integrated, \$	39,453	78,299	141,571	246,923	257,621	271,156	284,978	299,189	313,787	319,768
Field Integrated, \$	107,087	212,527	384,265	670,219	690,257	735,995	773,513	812,085	851,707	867,902
Gross Revenue	146,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710
Occupancy Expense										
Utilities and Trash Disposal	4,487	4,915	5,657	7,093	7,173	7,286	7,396	7,505	7,613	7,617
Land Lease										
Service and Repair	13,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Software	300	310	320	331	342	353	365	377	389	402
Total Occupancy Expense	37,787	37,225	37,977	19,423	49,515	19,659	19,761	19,882	20,002	20,019
Operating Expense										
Lumber	45,207	89,786	162,463	283,574	296,082	311,871	328,017	344,633	361,719	368,891
Plates	14,394	28,588	51,728	90,289	94,272	99,299	104,440	109,730	115,171	117,454
Other	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524
Packaging	500	515	530	546	563	580	597	615	633	652
Permit Costs/Certification	7,750	1,800	1,853	1,907	1,962	2,020	2,079	2,140	2,202	2,267
Insurance	24,660	28,589	34,607	44,156	44,981	46,057	47,126	48,206	49,297	49,694
Total Operating Expense	97,511	154,428	256,485	425,935	443,498	465,625	488,228	511,473	535,357	545,482
Administrative Expense										
Office Equipment and Supplies	586	1,163	2,103	3,669	3,828	4,029	4,234	4,445	4,662	4,751
Bookkeeping										
Payroll	1,589	1,641	1,695	1,751	1,809	1,869	1,931	1,994	2,060	2,128
Total Administrative Expense	2,175	2,805	3,799	5,420	5,637	5,897	6,165	6,439	6,722	6,879
Personnel Expense										
Management	23,558	22,597	21,547	22,926	24,393	25,954	27,614	29,382	31,262	33,262
Carpenter	10,251	12,730	16,612	21,904	23,805	24,878	25,977	27,108	28,272	28,956
Crew	24,001	30,553	39,870	54,969	57,132	59,707	62,344	65,000	67,853	69,494
Benefits+Payroll Taxes	23,364	26,352	31,212	40,319	42,132	44,235	46,374	48,620	50,955	52,685
Total Personnel Expense	81,773	92,233	109,241	141,118	147,462	150,753	162,310	170,169	178,342	184,396
Total Expense before Depreciation	199,246	266,690	387,502	591,897	616,112	645,915	676,464	707,953	740,423	756,776
Depreciation and Amortization										
Facilities & Equip. Loan Interest	37,208	35,273	33,223	31,050	28,746	26,304	23,716	20,972	18,064	14,981
Depreciation	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853
Total	53,060	51,126	49,076	46,902	44,599	42,157	39,569	36,825	33,917	30,834
Net Income before Taxes	(105,766)	(26,990)	89,259	278,343	296,168	319,079	342,459	366,486	391,154	400,099
Income Tax			22,781	114,008	131,095	142,184	144,667	155,095	165,801	169,683
Income after Taxes	(105,766)	(26,990)	66,478	164,335	165,073	176,895	197,792	211,391	225,353	230,416

State Income Tax									
	\$	\$	\$	\$	\$	\$	\$	\$	\$
	10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
	2,000%	3,000%	4,000%	5,000%	6,000%	7,000%	8,000%	9,000%	9,400%

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Starting Cash	0	47,850	2,543	48,652	190,446	330,674	480,282	648,199	826,971	1,016,798
Operations										
Cash Inflow:										
Cash receipts from customers	146,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710
Cash paid for:										
Occupancy Expense	(17,787)	(17,225)	(17,977)	(19,423)	(19,515)	(19,639)	(19,761)	(19,882)	(20,002)	(20,019)
Operating Expense	(97,511)	(154,428)	(256,485)	(425,935)	(443,498)	(465,625)	(488,228)	(511,473)	(535,357)	(545,482)
Administrative Expense	(2,175)	(2,805)	(3,799)	(5,420)	(5,637)	(5,897)	(6,165)	(6,439)	(6,722)	(6,879)
Personnel Expense	(81,773)	(92,233)	(109,241)	(141,118)	(147,462)	(154,753)	(162,310)	(170,169)	(178,342)	(184,396)
Interest	(37,208)	(35,273)	(33,223)	(31,050)	(28,746)	(26,304)	(23,716)	(20,972)	(18,064)	(14,981)
Income Taxes	0	0	(22,781)	(114,008)	(131,095)	(142,184)	(144,667)	(155,095)	(165,801)	(169,683)
Net Cash Flow from Operations	-89,914	-11,137	82,330	180,188	180,925	192,747	213,644	227,244	241,206	246,269
Investing Activities										
Cash receipts	-	-	-	-	-	-	-	-	-	-
Cash Paid for:										
Equipment Purchase	(180,250)	-	-	-	-	-	-	-	-	-
Building Facilities	(720,000)	-	-	-	-	-	-	-	-	-
Net Cash Flow from IA	(900,250)	0	0	0	0	0	0	0	0	0
Financing Activities										
Cash receipts from:										
USDA Grant	450,125	-	-	-	-	-	-	-	-	-
EDA Grant	-	-	-	-	-	-	-	-	-	-
Borrowing (loan)	620,125	-	-	-	-	-	-	-	-	-
Cash paid for:										
Debt Principal Payments	(32,236)	(34,170)	(36,221)	(38,394)	(40,697)	(43,139)	(45,728)	(48,471)	(51,380)	(54,462)
Net Cash Flow from FA	1,038,014	(34,170)	(36,221)	(38,394)	(40,697)	(43,139)	(45,728)	(48,471)	(51,380)	(54,462)
Final Cash position	47,850	2,543	48,652	190,446	330,674	480,282	648,199	826,971	1,016,798	1,208,604
Net Change in Cash	47,850	-45,308	46,110	141,794	140,228	149,608	167,917	178,773	189,826	191,806

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OPERATING LOANS1

Operating Loan	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Beg Principal	\$170,000	\$157,102	\$143,431	\$128,939	\$113,578	\$97,295	\$80,035	\$61,740	\$42,347	\$21,790
Total Payment	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098	\$23,098
Interest	\$10,200	\$9,426	\$8,606	\$7,736	\$6,815	\$5,838	\$4,802	\$3,704	\$2,541	\$1,307
Principal	\$12,898	\$13,671	\$14,492	\$15,361	\$16,283	\$17,260	\$18,295	\$19,393	\$20,557	\$21,790
Rem. Principal	\$157,102	\$143,431	\$128,939	\$113,578	\$97,295	\$80,035	\$61,740	\$42,347	\$21,790	\$0

Loan Amount	\$170,000
Term (Number of years)	10
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	6.00%
Payment Amount	\$23,098

OPERATING LOANS2

[illegible]

Loan Amount	\$0
Term (Number of years)	5
Year Loan Starts	5
Annual Percentage Interest Rate (APR)	6.00%
Annual Payment Amount	\$0

FACILITY & EQUIPMENT LOANS

Facility & Equip. Loan 1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Beg Principal	\$450,125	\$430,786	\$410,287	\$388,559	\$365,526	\$341,111	\$315,232	\$287,800	\$258,722	\$227,899
Total Payment	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346	\$46,346
Interest	\$27,008	\$25,847	\$24,617	\$23,314	\$21,932	\$20,467	\$18,914	\$17,268	\$15,523	\$13,674
Principal	\$19,339	\$20,499	\$21,729	\$23,033	\$24,415	\$25,879	\$27,432	\$29,078	\$30,823	\$32,672
Rem. Principal	\$430,786	\$410,287	\$388,559	\$365,526	\$341,111	\$315,232	\$287,800	\$258,722	\$227,899	\$195,227

Loan Amount	\$450,125
Term (Number of years)	15
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	6.00%
Annual Payment Amount	\$46,346

[illegible]

REVENUE	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Federal income tax
Gable Integrated, \$	39,453	78,299	141,571	246,923	257,621	271,155	284,978	299,189	313,787	319,768	
Field Integrated, \$	107,037	212,527	384,265	670,219	689,257	733,955	773,513	812,085	851,707	867,942	
Gross Revenue	146,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710	
Occupancy Expense											
Utilities and Trash Disposal	4,487	4,915	5,657	7,093	7,173	7,286	7,396	7,505	7,613	7,617	\$ 50,000 \$ 75,000 \$ 50,000 \$ 15,000 \$ 25,000 \$ 50,000
Land Lease											
Service and Repair	13,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	-	\$ 75,000 \$ 100,000 \$ 100,000 \$ 34,000 \$ 75,000 \$ 13,500
Software	300	310	320	331	342	353	365	377	389	402	\$ 100,000 \$ 335,000 \$ 335,000 \$ 22,250 \$ 39,000 \$ 100,000
Total Occupancy Expense	17,287	17,225	17,977	19,423	19,515	19,639	19,761	19,882	20,002	20,019	\$ 335,000 \$ 113,900 \$ 34,000 \$ 34,000 \$ 335,000 \$ 100,000
Operating Expense											
Lumber	45,695	90,765	164,215	286,633	269,277	315,237	331,556	348,351	365,622	372,871	\$ 10,000,000 \$ 15,000,000 \$ 10,000,000 \$ 3,400,000 \$ 3,400,000 \$ 10,000,000
Plates	14,394	28,588	51,728	90,289	94,272	93,299	104,440	109,730	115,171	117,454	\$ 15,000,000 \$ 18,333,333 \$ 18,333,333 \$ 5,150,000 \$ 5,150,000 \$ 15,000,000
Other	5,000	5,190	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	-
Packaging	500	515	530	546	563	580	597	615	633	652	
Permit Fees/permit Costs/Certification	7,750	1,800	1,853	1,907	1,962	2,020	2,079	2,140	2,202	2,267	
Insurance	24,660	28,589	34,607	44,156	44,591	46,057	47,126	48,205	49,297	49,694	
Total Operating Expense	97,995	155,396	258,238	428,994	446,692	468,989	491,767	515,190	539,259	549,462	
Administrative Expense											
Office Equipment and Supplies	586	1,163	2,103	3,669	3,828	4,029	4,234	4,445	4,662	4,751	\$ 10,000 \$ 20,000 \$ 20,000 \$ 100 \$ 100 \$ 10,000
Bookkeeping											
Payroll	1,589	1,641	1,695	1,751	1,809	1,869	1,931	1,994	2,060	2,128	\$ 30,000 \$ 30,000 \$ 30,000 \$ 300 \$ 300 \$ 30,000
Total Administrative Expense	2,175	2,805	3,799	5,420	5,637	5,897	6,165	6,439	6,722	6,879	\$ 40,000 \$ 40,000 \$ 40,000 \$ 600 \$ 600 \$ 40,000
Personnel Expense											
Management	23,558	22,597	21,547	22,926	24,393	25,954	27,614	29,382	31,262	33,262	\$ 50,000 \$ 50,000 \$ 50,000 \$ 1,000 \$ 1,000 \$ 50,000
Carpenter	12,730	16,612	16,612	22,904	23,805	24,878	25,977	27,108	28,272	28,956	\$ 50,000 \$ 60,000 \$ 70,000 \$ 2,100 \$ 1,600 \$ 50,000
Crew	24,601	30,553	39,870	54,969	57,132	59,707	62,344	65,060	67,853	69,494	\$ 70,000 \$ 70,000 \$ 80,000 \$ 2,800 \$ 8,000 \$ 70,000
Benefits/Payroll Taxes	23,364	26,352	31,212	40,319	42,132	44,215	46,374	48,620	50,955	52,685	\$ 80,000 \$ 80,000 \$ 90,000 \$ 3,600 \$ 9,800 \$ 80,000
Total Personnel Expense	81,773	92,233	109,241	141,118	147,462	154,753	162,310	170,169	178,342	184,396	\$ 50,000 and more \$ 4,500 \$ 9,000 \$ 50,000
Total Expense before Depreciation	199,734	267,659	389,255	594,956	619,306	669,279	680,002	711,681	744,325	760,756	
Depreciation and Amortization											
Facilities & Equip. Loan Interest	37,208	35,273	35,223	31,050	28,746	26,394	23,716	20,972	18,064	14,981	
Depreciation	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	15,853	
Total	53,060	51,126	49,076	46,902	44,599	42,157	39,569	36,825	33,917	30,834	
Net Income before Taxes	[106,254]	[27,958]	87,507	275,284	292,974	315,715	338,921	362,768	387,252	396,120	
Income Tax			112,527	132,089	132,096	132,096	132,096	132,096	132,096	132,096	
Income after Taxes	[106,254]	[27,958]	65,479	162,756	171,884	183,619	195,789	209,287	223,145	228,164	

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Cash	0	47,362	1,086	46,197	186,412	333,452	489,784	655,698	832,366	1,019,984			
Operations													
Cash Inflow:													
Cash receipts from customers	146,540	290,826	525,837	917,142	956,879	1,007,151	1,058,491	1,111,274	1,165,494	1,187,710			
Cash paid for:													
Occupancy Expense	(17,787)	(17,225)	(17,977)	(19,423)	(19,515)	(19,639)	(19,761)	(19,882)	(20,002)	(20,019)			
Operating Expense	(97,999)	(155,396)	(258,238)	(428,994)	(446,692)	(468,989)	(491,767)	(515,190)	(539,259)	(549,462)			
Administrative Expense	(2,175)	(2,805)	(3,799)	(5,420)	(5,637)	(5,897)	(6,165)	(6,439)	(6,722)	(6,879)			
Personnel Expense	(81,773)	(92,233)	(109,241)	(141,118)	(147,462)	(154,753)	(162,310)	(170,169)	(178,342)	(184,396)			
Interest	(37,208)	(35,273)	(33,223)	(31,050)	(28,746)	(26,304)	(23,716)	(20,972)	(18,064)	(14,981)			
Income Taxes	0	0	(22,028)	(112,527)	(121,089)	(132,096)	(143,131)	(153,482)	(164,107)	(167,956)			
Net Cash Flow from Operations	-90,401	-12,106	81,331	178,609	187,737	199,471	211,642	225,139	238,997	244,016			
Investing Activities													
Cash receipts	-	-	-	-	-	-	-	-	-	-			
Cash Paid for:													
Equipment Purchase	(180,250)	-	-	-	-	-	-	-	-	-			
Building Facilities	(720,000)	-	-	-	-	-	-	-	-	-			
Net Cash Flow from IA	(900,250)	0	0	0	0	0	0	0	0	0			
Financing Activities													
Cash receipts from:													
USDA Grant	450,125	-	-	-	-	-	-	-	-	-			
EDA Grant	-	-	-	-	-	-	-	-	-	-			
Borrowing (loan)	620,125	-	-	-	-	-	-	-	-	-			
Cash paid for:													
Debt Principal Payments	-32,236	-34,170	-36,221	-38,394	-40,697	-43,139	-45,728	-48,471	-51,380	-54,462			
Net Cash Flow from FA	1,038,014	-34,170	-36,221	-38,394	-40,697	-43,139	-45,728	-48,471	-51,380	-54,462			
Final Cash position	47,362	1,086	46,197	186,412	333,452	489,784	655,698	832,366	1,019,984	1,209,537			
Net Change in Cash	47,362	-46,276	45,111	140,215	147,040	156,332	165,914	176,668	187,618	189,554			

	12	23	39	67	67	69	70	71	72	71
AVCP Truss Plant Houses Built	47	90	158	267	269	274	279	284	288	284
Gable Integrated, #	223	429	750	1,267	1,279	1,304	1,326	1,348	1,369	1,350
Field Integrated, #	840	868	896	926	956	988	1,021	1,054	1,089	1,125
Integrated Gable Truss Price per Unit	480	496	512	529	547	565	583	602	622	643
Integrated Field Truss Price per Unit	39,453.12	78,299	141,571	246,923	257,621	271,156	284,978	299,189	313,787	319,768
Gable Integrated Including Inflation, \$	107,087	212,527	384,265	670,219	699,257	735,995	773,513	812,085	851,707	867,942
Field Integrated Including Inflation, \$										

Integrated Field Truss	19
Integrated Gable Truss	4
Integrated Gable Truss Price per Unit, \$	840
Integrated Field Truss Price per Unit, \$	480

Lumber 2x4 20 ft length quantity needed	3,452	11,609	19,601	19,796	20,171	20,522	20,857	21,176	20,890
Lumber 2x4 20 ft length, bf	46,017	88,409	154,744	263,887	268,878	273,557	278,024	282,274	278,465
Price per pc. 2x4 20 ft	13.75	14.21	15.19	15.70	16.23	16.78	17.35	17.94	18.54
Total cost Lumber 2x4	47,466	94,274	170,582	297,746	310,880	327,459	344,411	379,798	387,328
Plates, 100 sq in	5,758	11,061	19,361	33,017	33,641	34,227	34,785	35,317	34,841
Price per 100 sq in, \$	2.50	2.58	2.67	2.76	2.86	2.95	3.05	3.26	3.37
Total cost plates, \$	14,394	28,588	51,728	94,272	99,299	104,440	109,730	115,171	117,454
Lumber 2x6 20 ft length quantity needed	2,219	7,463	12,600	12,726	12,967	13,193	13,408	13,613	13,429
Lumber 2x6 20 ft length, bf	44,385	85,273	149,255	254,526	259,340	263,853	268,161	272,260	268,587
Price per pc. 2x6 20 ft	20.59	21.29	22.00	22.75	23.52	24.31	25.98	26.86	27.77
Total cost Lumber 2x6	45,695	90,755	164,215	286,633	299,277	331,556	348,351	365,622	372,871
Plates, 100 sq in	5,758	11,061	19,361	33,017	33,641	34,227	34,785	35,317	34,841
Price per 100 sq in, \$	2.50	2.58	2.67	2.76	2.86	2.95	3.05	3.26	3.37
Total cost plates, \$	14,394	28,588	51,728	94,272	99,299	104,440	109,730	115,171	117,454
Difference betw 2x4 and 2x6	1,771.71	3,519	6,367	11,114	12,223	12,855	13,506	14,176	14,457

Pc per one house	294	189
Board feet per one pc	13	20
Board feet per one house	3,919	3,780
Weight per one house, lb	7,644	7,560
Field Truss	1904	
Gable Truss	3214	
Kiln Dried, lb/unit	26	40
Green, lb/unit	34	52
2013	38399	
2014	39696	
Inflation	3.38%	

Carpenter	\$ 10,251	\$ 12,730	\$ 16,612	\$ 22,904	\$ 23,805	\$ 24,878	\$ 25,977	\$ 27,108	\$ 28,272	\$ 28,956
Salary per Hour, \$	\$ 25.00	\$ 25.83	\$ 26.68	\$ 27.56	\$ 28.47	\$ 29.41	\$ 30.38	\$ 31.38	\$ 32.41	\$ 33.48
Crew (4 employees)	\$ 24,601	\$ 30,553	\$ 39,870	\$ 54,969	\$ 57,132	\$ 59,707	\$ 62,344	\$ 65,060	\$ 67,853	\$ 69,494
Salary per Hour, \$	\$ 15.00	\$ 15.50	\$ 16.01	\$ 16.53	\$ 17.08	\$ 17.64	\$ 18.23	\$ 18.83	\$ 19.45	\$ 20.09
Benefits (40%)	\$ 13,941	\$ 17,313	\$ 22,593	\$ 31,149	\$ 32,375	\$ 33,834	\$ 35,328	\$ 36,857	\$ 38,450	\$ 39,380
Number of trusses built based on demand projection	270	519	908	1,533	1,549	1,578	1,605	1,632	1,657	1,634
Number of trusses built	54	104	182	307	310	316	321	326	331	327
Number trusses built Crew	216	415	727	1,227	1,239	1,262	1,284	1,305	1,325	1,307
Hours per year Carpenter	410	493	623	831	836	846	855	864	872	865
Hours per year Crew	1,640	1,972	2,491	3,325	3,345	3,384	3,421	3,456	3,489	3,459
Total Salary	\$ 48,793	\$ 60,597	\$ 79,075	\$ 109,022	\$ 113,312	\$ 118,418	\$ 123,650	\$ 129,035	\$ 134,576	\$ 137,829
Hours per year	700	650	600	618	637	656	675	696	716	738
Manager (Base salary \$70,000)	23,558	22,597	21,547	22,926	24,393	25,954	27,614	29,382	31,262	33,262
Base Salary, \$	70,000	72,310	74,696	77,161	79,708	82,338	85,055	87,862	90,761	93,756
Benefits (40%)	9,423	9,039	8,619	9,170	9,757	10,381	11,046	11,753	12,505	13,305
Total Salary Manager	32,981	31,636	30,166	32,096	34,150	36,335	38,660	41,134	43,766	46,567
Total Salary	\$ 70,015	\$ 65,881	\$ 78,029	\$ 100,799	\$ 105,330	\$ 110,538	\$ 115,936	\$ 121,549	\$ 127,387	\$ 131,712
Total Benefits	\$ 23,364	\$ 26,352	\$ 31,212	\$ 40,319	\$ 42,132	\$ 44,215	\$ 46,574	\$ 49,020	\$ 50,955	\$ 52,685

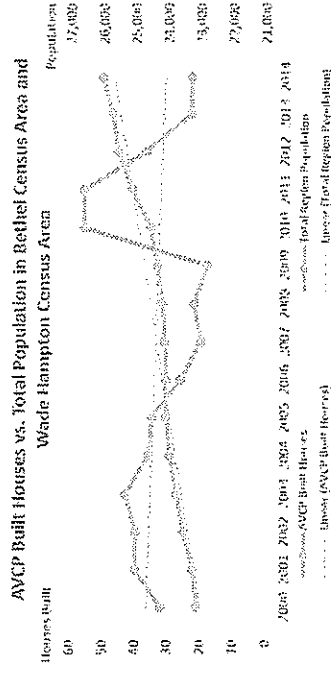
Number of integrated trusses per hour	1	2
Number of trusses per day	8	24
Hour of work per day	8	8
Number of trusses per week	40	120
Number of crew members+carp	5	5
Trusses per employee per hour	0.20	0.60

Year	Population Forecast Bethel Census Area	Population Forecast Wade Hampton Census Area	Total Region Population	Growth Bethel 5 years	Average growth Bethel per Year	Growth Wade Hampton 5 years	Average growth Wade Hampton per Year
2017	18,404	8,170	26,574	-	-	-	-
2022	19,246	8,688	27,934	4.58%	0.92%	5.34%	1.27%
2027	20,103	9,204	29,307	4.45%	0.89%	5.94%	1.19%

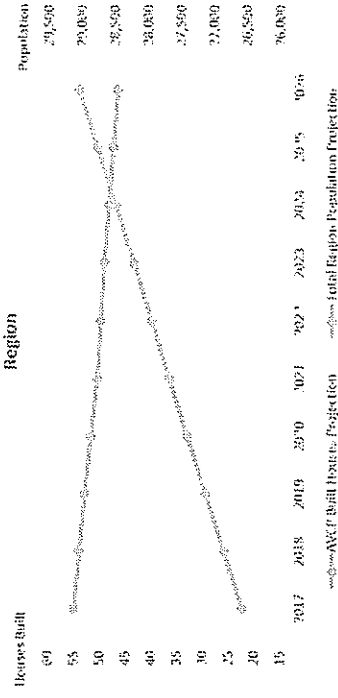
Column1	AVCP Built Houses	Total Houses Built in Region	Population Bethel Census	Population Wade Hampton Census	Total Region Population	Change YTD	New Residential Construction in Alaska	Other Demand
2000	32	38	16,080	7,033	23,113		3183	6
2001	40	48	16,171	7,051	23,222	25.00%	4176	8
2002	40	48	16,414	7,103	23,517	0.00%	4032	8
2003	43	51	16,517	7,201	23,718	7.50%	4703	8
2004	36	43	16,603	7,330	23,933	-16.28%	4774	7
2005	35	42	16,728	7,313	24,041	-2.78%	4709	7
2006	26	31	16,755	7,292	24,047	-25.71%	4155	5
2007	26	24	16,723	7,372	24,095	-23.08%	3242	4
2008	22	26	16,762	7,392	24,154	10.00%	2205	4
2009	18	21	16,860	7,469	24,329	-18.18%	2291	3
2010	56	67	17,083	7,464	24,547	211.11%	2001	11
2011	56	67	17,468	7,648	25,116	0.00%	1936	11
2012	37	44	17,746	7,809	25,555	-33.93%	1918	7
2013	23	27	17,758	7,977	25,735	-37.84%	1102	4
2014	23	27	17,991	8,053	26,044	0.00%	1578	4

Regression Based Equation for the number of houses built by AVCP: Number of Houses = 273.50+0.03*Population Bethel-0.14*Population WH
Based on 2004-2013 data

p-value for Popul	0.028
p-value for Popul	0.038
R-Square	52.47%



Projected AVCP Built Houses vs. Projected Total Population in Region



Year	Demand Covered by Truss Plant	Total Houses Built in Region (From Existing Sources) Projection	Population Bethel Census Projection	Population Wade Hampton Census	Total Region Population Projection	"New Market" Demand Covered by AVCP and CCHRC	Other Demand	AVCP Built Houses Projection
2017	12	65	18,404	8,170	26,574	1	10	55
2018	23	64	18,572	8,274	26,846	5	10	54
2019	39	63	18,742	8,379	27,121	8	10	53
2020	67	62	18,914	8,485	27,399	10	10	52
2021	67	60	19,087	8,592	27,679	12	10	51
2022	69	59	19,246	8,688	27,934	14	9	50
2023	70	58	19,417	8,791	28,209	16	9	49
2024	71	58	19,590	8,895	28,486	18	9	48
2025	72	57	19,765	9,001	28,766	20	9	48
2026	71	55	19,941	9,108	29,049	20	9	47

Weeks of work	10	12	16	21	21	21	21	21	22	22
Electricity	2,191	2,634	3,328	4,441	4,469	4,521	4,570	4,616	4,661	4,621
Utilities	546	656	829	1,106	1,113	1,126	1,138	1,150	1,161	1,151
Garbage Disposal	1,750	1,625	1,500	1,545	1,591	1,639	1,688	1,739	1,791	1,845
Service and Repair	13,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Software	300	310	320	331	342	353	365	377	389	402
Payroll (manager + 5 employees)	1589	1641	1695	1751	1809	1869	1931	1994	2060	2128
Insurance General	1,026	2,036	3,681	6,420	6,698	7,050	7,409	7,779	8,158	8,314
Property Insurance	11,000	11,363	11,738	12,125	12,525	12,939	13,366	13,807	14,262	14,733
Accidents Insurance	12,634	15,190	19,189	25,610	25,768	26,069	26,351	26,620	26,876	26,646
Total Insurance	24,660	28,589	34,607	44,156	44,991	46,057	47,126	48,206	49,297	49,694
Rent per day, \$	188	194	201	207	214	221	228	236	244	252
Plant Certification (WCLUB)	7,000	1,750	1,803	1,857	1,912	1,970	2,029	2,090	2,152	2,217
III. Local Building Permits	700									
Business License	50	50	50	50	50	50	50	50	50	50
Total Certification and Permits	7,750	1,800	1,853	1,907	1,962	2,020	2,079	2,140	2,202	2,267
Gasoline price per gallon, \$	7.00	7.23	7.47	7.72	7.97	8.23	8.51	8.79	9.08	9.38
Gasoline, \$	443	879	1,589	2,772	2,892	3,044	3,199	3,359	3,523	3,590
Gasoline, unloaded tractor	190	377	681	1,188	1,240	1,305	1,371	1,440	1,510	1,539
Number of Deliveries	2	4	7	11	11	11	12	12	12	12
Hours Total	11.74	23	39	67	67	69	70	71	72	71
Driver's Salary Total	265	527	953	1662	1734	1825	1918	2013	2112	2152
Salary per hour, \$	17.00	17.56	18.14	18.74	19.36	20.00	20.66	21.34	22.04	22.77
Tractor Rent, \$	368	730	1320	2303	2402	2529	2658	2790	2926	2982
Total Delivery, \$	1,256.17	2,512.86	4,543.44	7,924.48	8,267.82	8,702.19	9,145.79	9,601.86	10,070.34	10,262.29
Price Including Inflation, \$	20.37	21.06	21.77	22.51	23.27	24.05	24.86	25.70	26.57	27.47
Gasoline per 1 house, \$	53.89									
Gasoline per 1 pc of lumber, \$	0.29									
Driver's Salary per 1 house	22.61									
Driver's Salary per 1 pc of lumber	0.12									
Tractor rent per house	31.33									
Tractor rent per 1 pc of lumber	0.17									
Calculated landed price for lumber, \$	20.37	landed price for local lumber								

Utilities Assumptions
Electricity price Bethel, \$ per kw hour 0.57
Electricity Consumption, kw per month 1500
Garbage Disposal, \$ per truck 200
Water, \$ per month \$166.00
Sewer, \$ per month \$47.00
Software, \$ per year 300

Insurance Assumptions
Washington Workers Comp Rate 4.97
Alaska Premium 1.24

Delivery Assumptions
Load capacity for tractor class 8, lb 54000
Gasoline price, \$ 7
Gasoline Consumption Loaded, miles per gallon 3
Gasoline Consumption unloaded, miles per gallon 7
Number of houses per load 6
Distance (Chuathbaluk-Bethel) 97
Time of delivery, hours 3
Driver's Salary, \$ per hour 17
Tractor Rent, \$ per day 188

Manufacturing Equipment	Quantity	Unit Price \$	Subtotal Cost	Depreciation Rate %	Useful Life Years
Caterpillar RC60, 6,000# Fork Lift	1	\$ 13,000	\$ 13,000	\$ 1,300	10
Lumber racks, 6 bunks per rack	3	\$ 7,000	\$ 21,000	\$ 2,100	10
Lumber/material handling carts	11	\$ 250	\$ 2,750	\$ 275	10
Linear Saw w/ Speed Cut Express	1	\$ 18,000	\$ 18,000	\$ 1,800	10
Metal Jig Tables	12	\$ 1,000	\$ 12,000	\$ 2,400	5
Lasers: straight line and cross	3	\$ 400	\$ 1,200	\$ 240	5
Pallet rack for plates	1	\$ 600	\$ 600	\$ 60	10
Truss building hand tools and equipment	1	\$ 3,500	\$ 3,500	\$ 700	5
Eagle TP600 hydraulic presses	2	\$ 9,000	\$ 18,000	\$ 1,800	10
Small air compressor	1	\$ 900	\$ 900	\$ 180	5
30' finished truss handling wagon	1	\$ 2,200	\$ 2,200	\$ 220	10
finished truss staging racks	4	\$ 1,000	\$ 4,000	\$ 800	5
Metal material banding equipment	1	\$ 500	\$ 500	\$ 100	5
Floor Truss Machine	1	\$ 25,000	\$ 25,000	\$ 5,000	
Total Capital Cost			\$ 122,650	\$ 16,975	
Freight			\$ 55,000		

Office Equipment	Quantity	Unit Price \$	Subtotal Cost	Depreciation Rate %	Useful Life Years
Computer	1	\$ 1,000	\$ 1,000	\$ 200	5
Printer	1	\$ 500	\$ 500	\$ 100	5
Telephone/Fax	1	\$ 150	\$ 150	\$ 30	5
Other	-	\$ 350	\$ 350	-	-
Total			\$ 2,000	\$ 330	
Freight			\$ 600		

Total Capital Cost	\$ 124,650	
Total Freight	\$ 55,600	44.60%
Total Depreciation per Year	\$ 31,705	
Percentage Paid After Receiving Grants	50%	
Adjusted Depreciation Due to Grants	\$ 15,852.50	
Facility Construction	2,400	300
		720,000
		50
		14,400

Sources:

Ex-Factory (<http://www.exfactory.com/>)

Truss Machinery Connections (<http://www.trussmachineryconnections.com/roof-truss-machinery.htm>)

Wood Truss Systems (<http://www.woodtrussystems.com/used-listings/>)

Personal Communication, Nick Lee, Alaska Engineered Truss (Multiple)

Eagle Metal (<http://www.eaglemetal.com/equipment.php>)

Northland Services, Inc. Tariffs and Commodity Rates

	2x4 20 ft length			2x6 20 ft length		
	Unit Price, \$	Delivery, \$	Landed Price, \$	Unit Price, \$	Delivery, \$	Landed Price, \$
Spenard Builders Supply (Anchorage)	7.98	5.77	13.75	11.95	8.64	20.59
Northlandwood (Anchorage)	10.4	3.12	13.52	15.6	4.68	20.28

Spenard Builders Supply	Quantity	Price/unit, \$		Total	Delivery	Delivery share	Delivery per	
							item	unit
2x6	378	11.95	4517.10	0.49	3266.03	8.64		
2x4	588	7.98	4692.24	0.51	3392.67	5.77		

REVENUE											
Lumber Sales Grade 2 and higher, \$	43,941	87,272	157,912	275,631	287,790	303,137	318,830	334,980	351,588	358,560	
Lumber Sales Grade 3 and lower, \$	7,213	14,325	25,920	45,243	47,238	49,757	52,333	54,984	57,710	58,854	
Over-Run	-	-	-	-	-	-	-	-	-	-	
Gross Revenue	51,153	101,596	183,832	320,874	335,028	352,895	371,163	389,964	409,299	417,414	
Occupancy Expense											
Electricity	2,112	4,057	7,102	11,990	12,110	12,339	12,554	12,759	12,954	12,779	
Gazolineand Trash Disposal	1,034	2,034	3,646	6,305	6,523	6,811	7,101	7,398	7,700	7,789	
Total Occupancy Expense	3,146	6,091	10,747	18,295	18,634	19,150	19,655	20,157	20,654	20,569	
Operating Expense											
Timber	18,475	36,666	66,295	115,629	120,639	126,977	133,450	140,105	146,940	149,741	
fessional Fees/Permit Costs/Certification	-	-	-	-	-	-	-	-	-	-	
Insurance	1,900	3,254	5,433	9,021	9,303	9,677	10,055	10,441	10,833	10,939	
Delivery	6,305	12,457	22,427	38,953	40,475	42,433	44,425	46,467	48,557	49,308	
Lumber Certification	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	
Total Operating Expense	34,680	60,378	102,155	171,603	178,417	187,088	195,930	205,012	214,331	217,989	
Administrative Expense											
Service and Repare	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
Office Equipment and Supplies	-	-	-	-	-	-	-	-	-	-	
Bookkeeping	-	-	-	-	-	-	-	-	-	-	
Payroll	265	345	345	345	345	345	345	345	345	345	
Total Administrative Expense	2,265	2,345	2,345	2,345	2,345	2,345	2,345	2,345	2,345	2,345	
Personnel Expense											
Management	13,462	14,559	15,745	17,028	18,416	19,917	21,540	23,296	25,195	27,248	
Sawmill Operator	1,953	3,865	6,967	12,117	12,605	13,228	13,862	14,511	15,175	15,420	
Support Employee	1,598	3,162	5,700	9,914	10,313	10,823	11,342	11,873	12,416	12,616	
Benefits+Payrol Taxes	6,805	8,634	11,365	15,623	16,534	17,588	18,698	19,872	21,114	22,113	
Total Personnel Expense	23,817	30,219	39,778	54,682	57,868	61,556	65,443	69,552	73,900	77,397	
Total Expense before Depreciation	63,908	99,033	155,025	246,925	257,263	270,139	283,373	297,066	311,230	318,299	
Depreciation and Amortization											
Facilities & Equip. Loan Interest	1,000	819	629	429	220	-	-	-	-	-	
Depreciation	-	-	-	-	-	-	-	-	-	-	
Total	1,000	819	629	429	220	-	-	-	-	-	
Net Income Before Taxes	(13,755)	1,744	28,179	73,520	77,545	82,756	87,790	92,899	98,069	99,115	
Income Tax	-	279	4,772	16,462	17,769	19,985	22,150	24,358	26,602	27,056	
Income after Taxes	(13,755)	1,465	23,407	57,058	59,776	62,771	65,640	68,541	71,467	72,059	

Federal Income tax

Over	But not over	Fixed tax	Plus tax	Of the amount over
\$ -	\$ 50,000	\$ -	15.00%	\$ -
\$ 50,000	\$ 75,000	\$ 7,500	25.00%	\$ 50,000
\$ 75,000	\$ 100,000	\$ 13,500	34.00%	\$ 75,000
\$ 100,000	\$ 335,000	\$ 22,250	39.00%	\$ 100,000
\$ 335,000	\$ 10,000,000	\$ 113,900	34.00%	\$ 335,000
\$ 10,000,000	\$ 15,000,000	\$ 3,400,000	35.00%	\$ 10,000,000
\$ 15,000,000	\$ 18,333,333	\$ 5,150,000	38.00%	\$ 15,000,000
\$ 18,333,333			35.00%	\$ -

State Income Tax

At least	But less than	Tax fixed	Plus tax share	Of the amount over
\$ -	\$ 10,000	\$ -	1.00%	\$ -
\$ 10,000	\$ 20,000	\$ 100	2.00%	\$ 10,000
\$ 20,000	\$ 30,000	\$ 300	3.00%	\$ 20,000
\$ 30,000	\$ 40,000	\$ 600	4.00%	\$ 30,000
\$ 40,000	\$ 50,000	\$ 1,000	5.00%	\$ 40,000
\$ 50,000	\$ 60,000	\$ 1,500	6.00%	\$ 50,000
\$ 60,000	\$ 70,000	\$ 2,100	7.00%	\$ 60,000
\$ 70,000	\$ 80,000	\$ 2,800	8.00%	\$ 70,000
\$ 80,000	\$ 90,000	\$ 3,600	9.00%	\$ 80,000
\$ 90,000 and more		\$ 4,500	9.40%	\$ 90,000

YEAR	1	2	3	4	5	6	7	8	9	10
(1) Total	100	100	100	100	100	100	100	100	100	100
(2) Non-union	100	100	100	100	100	100	100	100	100	100
(3) Union	0	0	0	0	0	0	0	0	0	0
(4) Non-union	100	100	100	100	100	100	100	100	100	100
(5) Union	0	0	0	0	0	0	0	0	0	0
(6) Non-union	100	100	100	100	100	100	100	100	100	100
(7) Union	0	0	0	0	0	0	0	0	0	0
(8) Non-union	100	100	100	100	100	100	100	100	100	100
(9) Union	0	0	0	0	0	0	0	0	0	0
(10) Non-union	100	100	100	100	100	100	100	100	100	100
(11) Union	0	0	0	0	0	0	0	0	0	0
(12) Non-union	100	100	100	100	100	100	100	100	100	100
(13) Union	0	0	0	0	0	0	0	0	0	0
(14) Non-union	100	100	100	100	100	100	100	100	100	100
(15) Union	0	0	0	0	0	0	0	0	0	0
(16) Non-union	100	100	100	100	100	100	100	100	100	100
(17) Union	0	0	0	0	0	0	0	0	0	0
(18) Non-union	100	100	100	100	100	100	100	100	100	100
(19) Union	0	0	0	0	0	0	0	0	0	0
(20) Non-union	100	100	100	100	100	100	100	100	100	100
(21) Union	0	0	0	0	0	0	0	0	0	0
(22) Non-union	100	100	100	100	100	100	100	100	100	100
(23) Union	0	0	0	0	0	0	0	0	0	0
(24) Non-union	100	100	100	100	100	100	100	100	100	100
(25) Union	0	0	0	0	0	0	0	0	0	0
(26) Non-union	100	100	100	100	100	100	100	100	100	100
(27) Union	0	0	0	0	0	0	0	0	0	0
(28) Non-union	100	100	100	100	100	100	100	100	100	100
(29) Union	0	0	0	0	0	0	0	0	0	0
(30) Non-union	100	100	100	100	100	100	100	100	100	100
(31) Union	0	0	0	0	0	0	0	0	0	0
(32) Non-union	100	100	100	100	100	100	100	100	100	100
(33) Union	0	0	0	0	0	0	0	0	0	0
(34) Non-union	100	100	100	100	100	100	100	100	100	100
(35) Union	0	0	0	0	0	0	0	0	0	0
(36) Non-union	100	100	100	100	100	100	100	100	100	100
(37) Union	0	0	0	0	0	0	0	0	0	0
(38) Non-union	100	100	100	100	100	100	100	100	100	100
(39) Union	0	0	0	0	0	0	0	0	0	0
(40) Non-union	100	100	100	100	100	100	100	100	100	100
(41) Union	0	0	0	0	0	0	0	0	0	0
(42) Non-union	100	100	100	100	100	100	100	100	100	100
(43) Union	0	0	0	0	0	0	0	0	0	0
(44) Non-union	100	100	100	100	100	100	100	100	100	100
(45) Union	0	0	0	0	0	0	0	0	0	0
(46) Non-union	100	100	100	100	100	100	100	100	100	100
(47) Union	0	0	0	0	0</					

Operating Loan	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Beg Principal	\$20,000	\$16,381	\$12,580	\$8,590	\$4,400	\$0	\$0	\$0	\$0	\$0
Total Payment	\$4,619	\$4,619	\$4,619	\$4,619	\$4,619	\$0	\$0	\$0	\$0	\$0
Interest	\$1,000	\$819	\$629	\$429	\$220	\$0	\$0	\$0	\$0	\$0
Principal	\$3,619	\$3,800	\$3,990	\$4,190	\$4,400	\$0	\$0	\$0	\$0	\$0
Rem. Principal	\$16,381	\$12,580	\$8,590	\$4,400	\$0	\$0	\$0	\$0	\$0	\$0

Loan Amount	\$20,000
Term (Number of years)	5
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	5.00%
Payment Amount	\$4,619

[illegible]

Loan Amount	\$0
Term (Number of years)	5
Year Loan Starts	5
Annual Percentage Interest Rate (APR)	6.00%
Payment Amount	\$0

[illegible]

Loan Amount	\$0
Term (Number of years)	15
Year Loan Starts	1
Annual Percentage Interest Rate (APR)	6.00%
Payment Amount	\$0

[illegible]

	0	2,626	290	19,707	72,575	127,951	190,722	256,362	324,903	396,370
Starting Cash Operations										
Cash Inflow:										
Cash receipts from customers	51,153	101,596	183,832	320,874	335,028	352,895	371,163	389,964	409,299	417,414
Depreciation	0	0	0	0	0	0	0	0	0	0
Cash paid for:										
Occupancy Expense	(3,146)	(6,091)	(10,747)	(18,295)	(18,634)	(19,150)	(19,655)	(20,157)	(20,654)	(20,569)
Operating Expense	(34,680)	(60,378)	(102,155)	(171,603)	(178,417)	(187,088)	(195,930)	(205,012)	(214,331)	(217,989)
Administrative Expense	(2,265)	(2,345)	(2,345)	(2,345)	(2,345)	(2,345)	(2,345)	(2,345)	(2,345)	(2,345)
Personnel Expense	(23,817)	(30,219)	(39,778)	(54,682)	(57,868)	(61,556)	(65,443)	(69,552)	(73,900)	(77,397)
Interest	(1,000)	(819)	(629)	(429)	(220)	0	0	0	0	0
Income Taxes	0	(279)	(4,772)	(16,462)	(17,769)	(19,985)	(22,150)	(24,358)	(26,602)	(27,056)
Net Cash Flow from Operations	-13,755	1,465	23,407	57,058	59,776	62,771	65,640	68,541	71,467	72,059
Investing Activities										
Cash receipts	-	-	-	-	-	-	-	-	-	-
Cash Paid for:										
Equipment Purchase	(59,850)	-	-	-	-	-	-	-	-	-
Building Facilities	-	-	-	-	-	-	-	-	-	-
Net Cash Flow from IA	(59,850)	0	0	0	0	0	0	0	0	0
Financing Activities										
Cash receipts from:										
Grant (EDA plus USDA)	59,850	-	-	-	-	-	-	-	-	-
Borrowing (loan)	20,000	-	-	-	-	-	-	-	-	-
Cash paid for:										
Debt Principal Payments	(3,619)	(3,800)	(3,990)	(4,190)	(4,400)	0	0	0	0	0
Net Cash Flow from FA	76,231	(3,800)	(3,990)	(4,190)	(4,400)	0	0	0	0	0
Final Cash position	2,626	290	19,707	72,575	127,951	190,722	256,362	324,903	396,370	468,429
Net Change in Cash	2,626	-2,335	19,416	52,868	55,376	62,771	65,640	68,541	71,467	72,059

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Lumber 2x6 20 ft length, pc	2,219	4,264	7,463	12,600	12,726	12,967	13,193	13,408	13,613	13,429		
Lumber 2x6 20 ft length, bf	44,385	85,273	149,255	252,007	254,526	259,340	263,853	268,161	272,260	268,587		
Price per pc. 2x6 20 ft	19.80	20.47	21.16	21.87	22.61	23.38	24.17	24.98	25.83	26.70		
Total Sales Lumber grade 2 and > 2x6	43,941	87,272	157,912	275,631	287,790	303,137	318,830	334,980	351,588	358,560		
Price Lumber grade 3 and lower	13	13.44	13.89	14.36	14.85	15.35	15.87	16.40	16.96	17.53		
Lumber grade 3 and lower, bf	11,096	21,318	37,314	63,002	63,632	64,835	65,963	67,040	68,065	67,147		
Lumber grade 3 and lower, pc	555	1,066	1,866	3,150	3,182	3,242	3,298	3,352	3,403	3,357		
Total Sales Lumber grade 3 and lower, \$	7,213	14,325	25,920	45,243	47,238	49,757	52,333	54,984	57,710	58,854		

	Contribution Material Cost, Refin >
2013	38,399
2014	39,696
Inflation	3.38%
Price Lumber grade 3 and lower	13

Capital Cost	Price \$	Salvage \$	Useful Life Years	Depreciable Amount \$
Mid-Size Front End Loader	\$30,000	\$9,900	10	\$3,000
Wood Fired Boiler	\$15,000	\$4,950	10	\$1,500
Total	\$45,000	\$14,850	-	\$4,500
Depreciation	\$4,500	\$4,500	\$4,500	\$4,500
Nyle Systems Conventional Kiln	\$90,000	\$29,700	10	\$9,000
Total Capital Cost	\$45,000			
Total Freight	\$14,850			
Total Depreciation per Year	\$4,500			
Percentage Paid After Grant	0%			
Adjusted Depreciation Due to Grant	\$-			

Sawmill Manager Hours	400	420	441	463	486	511	536	563	591	621
Sawmill Manager	\$ 13,462	\$ 14,559	\$ 15,745	\$ 17,028	\$ 18,416	\$ 19,917	\$ 21,540	\$ 23,296	\$ 25,195	\$ 27,248
Annual Salary	\$ 70,000	\$ 72,100	\$ 74,263	\$ 76,491	\$ 78,786	\$ 81,149	\$ 83,584	\$ 86,091	\$ 88,674	\$ 91,334
Benefits Manager (40%)	\$ 5,385	\$ 5,823	\$ 6,298	\$ 6,811	\$ 7,366	\$ 7,967	\$ 8,616	\$ 9,318	\$ 10,078	\$ 10,899
Hours of sawmill work	88.77	170.55	298.51	504.01	509.05	518.68	527.71	536.32	544.52	537.17
Sawmill Operator	\$ 1,953	\$ 3,865	\$ 6,967	\$ 12,117	\$ 12,605	\$ 13,228	\$ 13,862	\$ 14,511	\$ 15,175	\$ 15,420
Salary per Hour, \$	\$ 22	\$ 23	\$ 23	\$ 24	\$ 25	\$ 26	\$ 26	\$ 27	\$ 28	\$ 29
Benefits Operator (40%)	\$ 781	\$ 1,546	\$ 2,787	\$ 4,847	\$ 5,042	\$ 5,291	\$ 5,545	\$ 5,805	\$ 6,070	\$ 6,168
Support Employee	\$ 1,598	\$ 3,162	\$ 5,700	\$ 9,914	\$ 10,313	\$ 10,823	\$ 11,342	\$ 11,873	\$ 12,416	\$ 12,616
Hours of sawmill work	89	171	299	504	509	519	528	536	545	537
Salary per Hour, \$	\$ 18	\$ 19	\$ 19	\$ 20	\$ 20	\$ 21	\$ 21	\$ 22	\$ 23	\$ 23
Benefits Support Emp (40%)	\$ 639	\$ 1,265	\$ 2,280	\$ 3,965	\$ 4,125	\$ 4,329	\$ 4,537	\$ 4,749	\$ 4,966	\$ 5,046
Total Personnel Expense	\$ 23,817	\$ 30,219	\$ 39,778	\$ 54,682	\$ 57,868	\$ 61,556	\$ 65,443	\$ 69,552	\$ 73,900	\$ 77,397

Processing timber per day, bf 5,000
Processing timber per hour, bf 625

Timber Needed, bf	44,385	85,273	149,255	252,007	254,526	259,340	263,853	268,161	272,260	268,587	Timber price per mbf, \$	333
Milled lumber needed to meet grade #2 lumber demand, bf	55,481	106,591	186,568	315,009	318,158	324,175	329,817	335,202	340,326	335,733	Recovery rate, %	0.8
Timber total, \$	18,475	36,666	66,295	115,629	120,639	126,977	133,450	140,105	146,940	149,741		
Timber price per mbf, \$	333	344	355	367	379	392	405	418	432	446		

[illegible]

Electricity price, \$ per kw hour	0.61
Electricity Usage, kw hour per month	4,800
Electricity, kw per hour	30
Trash Disposal, \$ per truck	200

[illegible]

Diesel engine for the sawmill (gal = 5 Lt = 50 HP) 12
Gasoline Consumption Sawmill per hour 7
Gasoline price, \$ per gallon

	188	194	201	207	214	221	228	236	244	252
Tractor Rent per Hour, \$	3,630	7,204	13,025	22,718	23,702	24,947	26,219	27,526	28,869	29,419
Tractor Rent	12	23	39	67	67	69	70	71	72	71
Number of Houses	55,481	106,591	186,568	315,009	318,158	374,175	329,817	335,202	340,326	335,733
Timber Needed, bf	965,369	1,854,684	3,246,286	5,481,155	5,535,949	5,640,654	5,738,811	5,832,510	5,921,666	5,841,762
Weight total timber, lb										
Number of deliveries (50000 lb per delivery)	19	37	65	110	111	113	115	117	118	117
Gasoline (loaded tractor), \$	1,802	3,576	6,466	11,278	11,767	12,385	13,016	13,665	14,332	14,605
Gasoline (not loaded tractor), \$	772	1,533	2,771	4,834	5,043	5,308	5,578	5,857	6,142	6,259
Driver's Salary, \$	873	1,677	2,936	4,957	5,007	5,101	5,190	5,275	5,356	5,283
Total Delivery, \$	6,305	12,457	22,427	38,953	40,475	42,433	44,425	46,467	48,557	49,308

Gasoline price, \$	7	7
Distance (Chualar-Buk-Oethel), miles	40	40
Fuel Consumption loaded tractor, miles per gallon	3	3
Fuel Consumption unloaded tractor, miles per gallon	7	7
Time of delivery one way, hour	1	1
Load capacity, lb	54000	54000
Driver's Salary per hour, \$	\$	\$
Workers Comp WA	\$7.00	\$7.00
Alaska Premium	\$2.20	\$2.20
One mbf, lb	1.24	1.24
	17400	17400

[illegible]

Application for Federal Assistance SF-424		
* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application		
* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision		
* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>		
* 3. Date Received: 05/13/2016		4. Applicant Identifier: <input type="text"/>
5a. Federal Entity Identifier: <input type="text"/>		5b. Federal Award Identifier: <input type="text"/>
State Use Only:		
6. Date Received by State: <input type="text"/>		7. State Application Identifier: <input type="text"/>
8. APPLICANT INFORMATION:		
* a. Legal Name: Native Village of Napaimute		
* b. Employer/Taxpayer Identification Number (EIN/TIN): 92-0164979		* c. Organizational DUNS: 1341716310000
d. Address:		
* Street1: Box 1301		
Street2: <input type="text"/>		
* City: Bethel		
County/Parish: <input type="text"/>		
* State: AK: Alaska		
Province: <input type="text"/>		
* Country: USA: UNITED STATES		
* Zip / Postal Code: 99559-1301		
e. Organizational Unit:		
Department Name: <input type="text"/>		Division Name: <input type="text"/>
f. Name and contact information of person to be contacted on matters involving this application:		
Prefix: <input type="text"/>		* First Name: Lisa
Middle Name: Carmel		
* Last Name: Feyereisen		
Suffix: <input type="text"/>		
Title: Administrative Support		
Organizational Affiliation: <input type="text"/>		
* Telephone Number: (907) 676-0599		Fax Number: <input type="text"/>
* Email: <input type="text"/>		

Application for Federal Assistance SF-424

* 9. Type of Applicant 1: Select Applicant Type:

I: Indian/Native American Tribal Government (Federally Recognized)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

* 10. Name of Federal Agency:

US Department of Housing and Urban Development

11. Catalog of Federal Domestic Assistance Number:

14.862

CFDA Title:

Indian Community Development Block Grant Program

* 12. Funding Opportunity Number:

FR-6000-N-23

* Title:

Community Development Block Grant Program for Indian Tribes and Alaska Native Villages

13. Competition Identification Number:

FR-6000-N-23

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

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View Attachment

* 15. Descriptive Title of Applicant's Project:

From Timber to Trusses

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="600,000.00"/>
* b. Applicant	<input type="text" value="210,237.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="810,237.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- ☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .
- ☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- ☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes ☒ No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title: * Telephone Number: Fax Number: * Email: * Signature of Authorized Representative: * Date Signed:

Applicant/Recipient Disclosure/Update Report

U.S. Department of Housing
and Urban Development

OMB Number: 2510-0011
Expiration Date: 12/31/2015

Applicant/Recipient Information

* Duns Number: 1341716310000

* Report Type: INITIAL

1. Applicant/Recipient Name, Address, and Phone (include area code):

* Applicant Name:

Native Village of Napaimute

* Street1: Box 1301

Street2:

* City: Bethel

County:

* State: AK: Alaska

* Zip Code: 99559-1301

* Country: USA: UNITED STATES

* Phone: (907) 676-0599

2. Social Security Number or Employer ID Number: 92-0164979

* 3. HUD Program Name:

Indian Community Development Block Grant Program

* 4. Amount of HUD Assistance Requested/Received: \$ 600,000.00

5. State the name and location (street address, City and State) of the project or activity:

* Project Name: From Trusses to Timbers

* Street1: Box 1301

Street2:

* City: Bethel

County:

* State: AK: Alaska

* Zip Code: 99559-1301

* Country: USA: UNITED STATES

Part I Threshold Determinations

* 1. Are you applying for assistance for a specific project or activity? These terms do not include formula grants, such as public housing operating subsidy or CDBG block grants. (For further information see 24 CFR Sec. 4.3).

☒ Yes

☐ No

* 2. Have you received or do you expect to receive assistance within the jurisdiction of the Department (HUD), involving the project or activity in this application, in excess of \$200,000 during this fiscal year (Oct. 1-Sep. 30)? For further information, see 24 CFR Sec. 4.9

☐ Yes

☒ No

If you answered " No " to either question 1 or 2, **Stop!** You do not need to complete the remainder of this form.

However, you must sign the certification at the end of the report.

Part II Other Government Assistance Provided or Requested / Expected Sources and Use of Funds.

Such assistance includes, but is not limited to, any grant, loan, subsidy, guarantee, insurance, payment, credit, or tax benefit.

Department/State/Local Agency Name:

* Government Agency Name:

Government Agency Address:

* Street1:

Street2:

* City:

County:

* State:

* Zip Code:

* Country:

* Type of Assistance:

* Amount Requested/Provided: \$

* Expected Uses of the Funds:

Department/State/Local Agency Name:

* Government Agency Name:

Government Agency Address:

* Street1:

Street2:

* City:

County:

* State:

* Zip Code:

* Country:

* Type of Assistance:

* Amount Requested/Provided: \$

* Expected Uses of the Funds:

(Note: Use Additional pages if necessary.)

Add Attachment

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Part III Interested Parties. You must disclose:

1. All developers, contractors, or consultants involved in the application for the assistance or in the planning, development, or implementation of the project or activity and
2. Any other person who has a financial interest in the project or activity for which the assistance is sought that exceeds \$50,000 or 10 percent of the assistance (whichever is lower).

* Alphabetical list of all persons with a reportable financial interest in the project or activity (For individuals, give the last name first)	* Social Security No. or Employee ID No.	* Type of Participation in Project/Activity	* Financial Interest in Project/Activity (\$ and %)
<input type="text"/>	<input type="text"/>	<input type="text"/>	\$ <input type="text"/> <input type="text"/> %
<input type="text"/>	<input type="text"/>	<input type="text"/>	\$ <input type="text"/> <input type="text"/> %
<input type="text"/>	<input type="text"/>	<input type="text"/>	\$ <input type="text"/> <input type="text"/> %
<input type="text"/>	<input type="text"/>	<input type="text"/>	\$ <input type="text"/> <input type="text"/> %
<input type="text"/>	<input type="text"/>	<input type="text"/>	\$ <input type="text"/> <input type="text"/> %

(Note: Use Additional pages if necessary.)

Add Attachment

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Certification

Warning: If you knowingly make a false statement on this form, you may be subject to civil or criminal penalties under Section 1001 of Title 18 of the United States Code. In addition, any person who knowingly and materially violates any required disclosures of information, including intentional non-disclosure, is subject to civil money penalty not to exceed \$10,000 for each violation.

I certify that this information is true and complete.

*** Signature:**

Lisa Fayerisen

*** Date: (mm/dd/yyyy)**

06/13/2016

